DOCUMENT RESUME

ED 375 053 SO 024 440

TITLE	An International Colloquium on Education: British and American Perspectives. Proceedings (La Crosse, Wisconsin, September 29-30, 1992).
INSTITUTION	Wisconsin Univ., La Crosse. Dept. of Educational Foundations.
REPORT NO	ISBN-0-9636941-0-3
PUB DATE	Sep 92
NOTE	260p.
PUB TYPE	Collected Works - Conference Proceedings (021)
EDRS PRICE	MF01/PC11 Plus Postage.
DESCRIPTORS	*Curriculum Development; Educational Research; Elementary Secondary Education; Foreign Countries; *Global Approach; Higher Education; International Cooperation; *International Educational Exchange; Multicultural Education; Social Studies; *Teacher Education; *Teaching Methods
IDENTIFIERS	*Wales; Wisconsin

ABSTRACT

This document presents the results of an exchange between the College of Education at the University of Wisconsin-La Crosse and the University College of Swansea in Wales to facilitate the development of a close departmental relationship in order to foster exchanges of information and personnel on preparing teachers by incorporating a global awareness into the teacher education curriculum. This document has three parts. The first part focuses on curriculum and contains 7 articles: (1) "Cultural Pluralism vs. Ethnic Fragmentation?" (Kent Koppelman); (2) "If Multiculturalism is the Answer, What is the Question?" (Jose Vega); (3) "Environmental Education in Wisconsin" (Lucy Slinger); (4) "Ideological Change and Curriculum Transition in Teaching about the Legacy of the Third Reich in East German Secondary Schools" (Gregory Wegner); (5) "Cross-Curricularity and the Whole Curriculum" (Michael Williams); (6) "A Socio-Political Analysis of Nationalized Curriculum," Response to Michael Williams (Joyce Shanks); and (7) "Pupils' Perceptions of Science in Their Final Year in Primary School" (Catherine Woodward). The second part on instruction includes five articles: (1) "A School-University Collaboration To Implement Cooperative Learning through Integrated Language Arts" (Carol Kirk); (2) "Parallels: Supporting Students and Teachers as Learners," Response to Carol Kirk (Delores Heiden); (3) "International Connections in the Tradition of Advocacy for Teacher Professionalism" (Wade W. Nelson); (4) "Assessment of Practical Skills in Secondary School Science Courses" (John Parkinson); and (5) "A Response to Assessment of Practical Skills in Secondary School Science Courses," Response to John Parkinson (John Whitsett). The third part contains 7 articles on teacher education: (1) "The Reform of British Initial Teacher Education and the Role of the Mentor" (John Furlong); (2) "Clinical Professors and Classroom Teachers as Co-Mentors" (Robert Richardson); (3) "Standards for Quality Classroom Practice" (Lyelle L. Palmer); (4) "The New Right, Thatcherism, and the Attack Upon the Post-War Consensus" (Robert Phillips); (5) A Response to Robert Phillips, author of the preceding article (Burton E. Altman); (6) "Differences in Academic Performance: An Exploration from the Perspective of Gender and Implications for the Initial Training of Teachers of Young Children (ages 3-11) (Susan Sanders); and (7) "Parents' and Teachers' Socialization of Young Children's Gender Identity," Response to Susan Sanders (Barbara Chaney). (DK)

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AN INTERNATIONAL COLLOQUIUM ON EDUCATION: BRITISH AND AMERICAN PERSPECTIVES

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PROCEEDINGS

SEPT. 29-30, 1992
DEPARTMENT OF EDUCATIONAL FOUNDATIONS
UNIVERSITY OF WISCONSIN-LA CROSSE
LA CROSSE, WISCONSIN

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ISBN 0-9636941-0-3

ACKNOWLEDGEMENT

Like any human endeavor or project, a proceedings document is the result of many personal and organizational contributions. While it is impossible to mention everyone, there are those to whom special thanks are due:

B. L. Clarkson, Principal, University College at Swansea, University of Wales

Philip M. Gelatt Foundation, Inc.

Judith Kuipers, Chancellor, University of Wisconsin-La Crosse

La Crosse Chapter of Phi Delta Kappa

Lee Rasch, President, Western Wisconsin Technical College, La Crosse

Jerry Redman, Director of Curriculum, Western Wisconsin Technical College, La Crosse

Nancy Sorenson, Interim Dean, College of Education, University of Wisconsin-La Crosse

Department of Education, University College at Swansea, University of Wales

University of Wisconsin-La Crosse Foundation

Michael Williams, Head, Department of Eduation, University College at Swansea, University of Wales

Department of Educational Foundations, University of Wisconsin-La Crosse

A special thanks to Marcia Johnson, program assistant to the Department of Educational Foundations, University of Wisconsin-La Crosse for her assistance in preparing the manuscript.

Members of the Educational Foundations Department:

Burton Altman
R. L. Goodhart
Kent Koppelman
Robert Norton
Richard Rasmussen
Robert Richardson
Gregory Wegner
David Witmer

FOREWORD

The beginning of the 1990s heralded a renewed emphasis preparing children for a global citizenry. Literature of professional journals related to the subject directed attention to international education, global education, intercultural education, and cultural pluralism. In her 1991 inaugural speech, the newly appointed chancellor of the University of Wisconsin-La Crosse, Judith Kuipers, spoke of the need to prepare college students to become world class professionals and for the university to become a global oriented institution. In 1992 the State Department of Public Instruction for the state of Wisconsin published its first curriculum guide entitled Global Education which had the objective to propose curriculum with local relevance to global issues.

National professional organizations feature global perspectives in their yearbooks and special sessions and committees at national conferences focus upon the need to prepare teachers who are aware of the global needs of the planet. It is only fitting that for the College of Education at UW-La Crosse to prepare teachers for the twenty-first century a global awareness must be incorporated into the teacher education curriculum. Linkages must be established between its faculty and those in foreign institutions.

It is with this in mind that a collaborative link between the College of Education at the University of Wisconsin-La Crosse and the University College of Swansea was established to facilitate the development of a close departmental relationship between individuals, functional groups, and departments as units in order to foster exchanges of information and personnel on a regular basis.

This publication represents results of the first formal and informal exchange at the University of Wisconsin-La Crosse in September 1992.

PREFACE

The University College of Swansea in Wales and the University of Wisconsin-La Crosse for more than a decade had identified themselves as sister institutions to achieve benefits from international inter-institutional collaboration. This proceedings represents a program to augment this cooperation and to establish a close faculty relationship between departments which share common interests.

Burton Altman, Professor of Educational Foundations at the University of Wisconsin-La Crosse met with Michael Williams, Head of the Department of Education, University College of Swansea while doing research in England to gather information about the impact of the 1988 Education Reform Act on teacher education in the United Kingdom.

During this visit and exchange of information, Altman and Williams explored the possibility of establishing linkages between academic educationists at Swansea and faculty in the College of Education at La Crosse. Together they developed a proposal to bring together education faculties from the two institutions to share knowledge about research and practices in education, this was to be accomplished through a faculty exchange. At least six representative faculty members from Swansea would travel to La Crosse in 1992 to meet with staff members to study concepts and perspectives within the profession in an effort to comprehend better the challenges and opportunities of teacher education in the 21st century. In return staff members from UW-La Crosse would meet the following year for a similar conference at Swansea. This proceedings document is the product of the first exchange which took place in the Fall of 1992.

TABLE OF CONTENTS

I. CURRICULUM

Cultural Pluralism vs. Ethnic Fragmentation: Should Schools Promote an Appreciation of Diversity?
Kent Koppelman, University of Wisconsin-La Crosse 3

If Multiculturalism is the Answer, What is the Question? Response to Kent Koppelman
Jose Vega, University of Wisconsin-River Falls 17

Environmental Education in Wisconsin
Lucy Slinger, University of Wisconsin-La Crosse 27

Ideological Change and Curriculum Transition in Teaching about the Legacy of the Third Reich in East German Secondary Schools
Gregory Wegner, University of Wisconsin-La Crosse 53

Cross-Curricularity and the Whole Curriculum: Bridging the Gap Between Curriculum Theory and Curriculum Policy Making
Michael Williams, University of Wales-Swansea 67

A Socio-Political Analysis of Nationalized Curriculum Response to Michael Williams
Joyce Shanks, University of Wisconsin-La Crosse 81

Pupils' Perceptions of Science in Their Final Year in Primary School
Catherine Woodward, University of Wales-Swansea 89

II. INSTRUCTION

A School-University Collaboration to Implement Cooperative Learning Through Integrated Language Arts
Carol Kirk, University of Wisconsin-La Crosse 109

Parallels: Supporting Students and Teachers as Learners Response to Carol Kirk
Delores Heiden, University of Wisconsin-La Crosse 123

International Connections in the Tradition of Advocacy for Teacher Professionalism: Dewey to Stenhouse to Schon
Wade W. Nelson, Winona State University 125

Assessment of Practical Skills in Secondary School Science Courses
John Parkinson, University of Wales-Swansea 143

A Response to Assessment of Practical Skills in Secondary School Science Courses
Response to John Parkinson
John Whitsett, La Crosse Area School District 169

III. TEACHER EDUCATION

The Reform of British Initial Teacher Education and the Role of the Mentor
John Furlong, University of Wales-Swansea 177

Clinical Professors and Classroom Teachers as Co-Mentors
Response to John Furlong
Robert Richardson, University of Wisconsin-La Crosse 195

Standards for Quality Classroom Practice: Quality Management of Teacher Behaving Using Accelerated Learning Criteria
Lyelle L. Palmer, Winona State University 201

The New Right, Thatcherism, and the Attack Upon the Post-War Consensus
Robert Phillips, University of Wales-Swansea 211

A Response to The New Right, Thatcherism, and the Attack Upon the Post-War Consensus
Response to Robert Phillips
Burton E. Altman, University of Wisconsin-La Crosse 235

Differences in Academic Performance: An Exploration from the Perspective of Gender and Implications for the Initial Training of Teachers of Young Children (ages 3-11)
Susan Sanders, University of Wales-Swansea 241

Parents' and Teachers' Socialization of Young Children's Gender Identity
Response to Susan Sanders
Barbara Chaney, University of Wisconsin-La Crosse 257

INTRODUCTION

In September 1992, the first faculty dialogue was held on the University of Wisconsin - La Crosse campus for the purpose of strengthening a collaborative link between an American and Welsh College of Education. Prior to this colloquium there were student exchanges between Swansea and La Crosse, yet with only limited exchange of information about programs beyond what was described in the university catalogs. This colloquium was designed to achieve the following objectives:

1. Introduce teacher education faculty of the University of Wisconsin-La Crosse to colleagues from the University College of Swansea, where issues of mutual concern could be examined.
2. Establish individual faculty relationships through which to share specific interest in special areas--early childhood education, social studies, curriculum, mathematics, teacher education, assessment, etc. that might provide impetus for course updating, research, or innovative student teaching arrangements.
3. Meet professional needs of faculty and teacher candidates through regular and consistent exchanges of information from regional and national conventions considering issues of education. Meaningful exchange of concerns not regularly exchanged otherwise would provide information and ideas of potentially critical value.
4. Implement a structured plan that might as a model for other institutions seeking to internationalize their teacher education program through exchanges of faculty and students.
5. Encourage pre-school, K-12 teachers to take advantage of such relationships to discuss issues of mutual interest which impact upon the economic, political, and social dimensions of the educational system.
6. Develop comprehensive plans for teacher candidates to study between institutions either through course taking or student teaching in order to reinforce and/or complement home-campus preparation.

Six persons from Swansea visited La Crosse from September 25 to October 2, 1992. The Swansea staff met with university professors, students in teacher education, faculty from neighboring institutions, area teachers and

administrators, and community leaders. Visits to public schools and the local technical college were provided to establish a wide range of familiarity with educational issues. Swansea staff also took part in college classroom discussions. During this time, a two day colloquium with staff members from the College of Education allowed presentation of findings from current research. The research focused on the following three broad areas of education: curriculum, instruction, and teacher education. The papers which appear here are those that were presented at the colloquium.

CURRICULUM

CULTURAL PLURALISM VS. ETHNIC FRAGMENTATION: SHOULD SCHOOLS PROMOTE AN APPRECIATION OF DIVERSITY?

Kent Koppelman
University of Wisconsin-La Crosse

> In the United States, we have the richest mix of ethnic groups, of racial groups, of global experience that the world has ever known and it is this richness of this mix that yields our incredible creativity and innovation . . . We have not even begun to experience the real potential of our fantastic human resource mix--our competitive edge in the global economy. (1982)

Whose words are these? Some idealist with his (or her) head in the clouds? Some ivory tower philosopher removed from the gritty business of life in urban America with all the racial problems associated with it? Is it some Civil Rights reformer? These words were written by John Naisbitt, the author of Megatrends and a man who has, since 1970, provided corporate clients with data and analyses related to a variety of pertinent social issues to facilitate corporate decision making.

In this quote, Naisbitt is confronting a reality that most Americans try to avoid, but it is almost unavoidable -- the growing number of "minorities" in the United States. The only way to avoid this issue is to focus on the present since the impact of the predicted changes is yet to be felt in many areas of the United States, but even if one focusses on the present, the demographic data and predictions stemming from that data are difficult to ignore. White males are currently just over 40% of the population, but in about 50 years white males will only constitute 32% of the population and "minorities" will be the majority in the workforce of the United States. The most dramatic changes will occur in "bellwether" states such as California, Texas, Florida. By the year 2035 over half of the workforce in Texas will be Black or Hispanic, a demographic prediction which does not include other minority groups (e.g. Asian/Pacific Island Americans) which are currently part of the Texas workforce.

To those who say that the demographers are just pulling numbers out of a hat, that no one can accurately predict what the mix of people will be in the future, I would remind them of a previous demographic prediction. The demographers said that English would be the second language for the majority

of Californians by the year 2000. They were wrong. English is a second language for the majority of Californians *today*, eight years earlier than the predicted date. Rather than quibble with demographers about their predictions, it is more pertinent to consider how the white (former) majority will respond as these changes occur. One way to speculate on that is to look at how California has responded.

One response in California was not a good harbinger of our future. With pressure from very vocal lobbyists, California legislators passed a law declaring English the official state language. This "muscle flexing" by the white middle class was intended to make sure recent immigrants (especially Mexican Americans) understood that they should not depend upon bilingual signs on highways or bilingual messages from any source. It was argued that the law reflected concern that California would begin to develop ethnic enclaves with separate cultures, languages, and interests but with no regard for the interests of the people as a whole. It is more realistic to regard the law as symbolic of the declining white majority's fears for the future.

This fear of ethnic divisiveness has become increasingly popular as our population continues to become increasingly diverse. Using the vague term "political correctness" as the straw man for their arguments, columnists like George Will have criticized efforts in higher education to celebrate diversity and promote pluralism, denouncing these practices with the charge that they will lead to the "balkanization" of the United States. Arthur Schlesinger, Jr. (1991) makes this sort of argument in his recent book, aptly titled The Disuniting of America. Others refer to the tragedy in what used to be Yugoslavia as an example of the dangers of encouraging ethnic affiliation. Such misguided responses do not bode well for our future as the nation with the most diverse society on the planet.

It is imperative that we understand what pluralism and diversity mean to us as a society. We can no longer engage in the "luxury" of ignorance. In business, education, government, and all areas of society, we must confront the problems and possibilities which a diverse society offers us. That is what John Naisbitt is advocating in the passage I cited at the beginning.

The changes awaiting us in the future will require some changes to be made in the present. To accomplish this, we must more clearly understand our past. An important part of this understanding is to understand our past

attitudes toward ethnic diversity. If we can understand what attitudes have been articulated with regard to diversity, we might be able to influence what attitudes should be promoted as we progress toward our increasingly multicultural future. Scholars like Milton Gordon (1964) reviewed and analyzed a variety of documents which has resulted in the identification of four perspectives on the presence of diverse ethnic groups in the United States. Although all of these perspectives have been articulated by various people at different times in our history, including the present, the first perspective, anglo conformity, has been and remains the dominant one.

Anglo conformity is based on the fact that the values and ideals of the United States were established by the first Europeans to settle here, the majority of which were English. In this perspective, the United States is perceived as an extension of Western Europe in general and England in particular. Anglo conformity rejects the value of diversity in favor of homogeneity. Everyone is supposed to conform to the same norms, customs and standards as determined by the anglo ancestors who settled here and modified by the dominant (white) society since that time.

Anglo conformity demands that people eradicate their ethnicity and reject their previous cultural heritage, even if that heritage is European. When writers refer to "assimilating" into our society, it is usually anglo conformity which is meant by this "assimilation." Immigrants are required to dispense with any language they brought with them, and to eliminate all rituals, traditions, clothing styles, ceremonies, and so on. Having done this, immigrants were expected to adopt "American ways" and become like "everyone else."

Schools were given the task of encouraging and enforcing this ideal of conformity. It was in the late 1800's amid a tidal wave of immigration that the term "Americanization" was coined to describe the process of assimilation expected of immigrants. The term is frequently found in the educational literature of that period because it was the schools' task to achieve the goal of creating a homogeneous society from the diverse groups who were coming here. The concept of "Americanization" became so popular it was even identified as a goal of the Bureau of Indian Affairs' boarding schools for Native American children. It took a number of years before anyone began to criticize the absurdity of talking about "Americanizing" Native Americans.

In its simplest terms, anglo conformity insists that people "dress white, talk white, think white, feel white" *and preferably be white*. For this reason, anglo conformity has always presented a problem for people of color. Racial minorities could forego everything, imitating and emulating white society to the extreme, but they could never achieve complete success in our society because ultimately they could never be white. Racial minorities who were college educated, spoke eloquently, dressed for success and even achieved financial success would still be denied entrance to a variety of public and private places because of their color. The reward for successful conformity was supposed to be access to all the good things our society had to offer, but people of color in the United States began to realize that the full rewards would always be denied them because of the shade of their skin. Only those light enough to "pass" for white could overcome all the barriers, and a few did travel that psychologically precarious path.

The melting pot perspective was created early in this century by Israel Zangwill (1915), a Jewish playwright who created and promoted this perspective in a play called "The Melting Pot." This concept has been especially popular in political and intellectual circles because it suggested an ideal about diversity that many people could readily support. This ideal was founded on the belief that an American was a blend of all the cultures which have come to this country, that an American was a combination of the best of what had gone before, of all that had become a part of our great experiment in democracy. To appreciate the appeal of the melting pot perspective, I will quote a speech from one of the characters in Zangwill's play which defines the melting pot concept. If you read it carefully, you will also recognize the omission which has proven to be the downfall of this particular perspective:

> America is God's crucible, the great Melting Pot where all the races of Europe are melting and reforming! . . . when I see (these immigrants I think), here you stand in your fifty groups, with your fifty languages and histories, and your fifty blood hatreds and rivalries. But you won't be long like that, brothers, for these are the fires of God you've come to -- these are the fires of God. A fig for your feuds and vendettas! Germans and Frenchmen, Irishmen and Englishmen, Jews and Russians -- into the Crucible with you all! God is making the American!

Despite the wonderfully rhapsodic tone of this speech, there is a conspicuous absence of any nonwhite groups. Blacks, Asians, Hispanics and

Native Americans are excluded from Zangwill's vision of the new American. Only people from northern Europe are identified -- even Greeks and Italians need not apply! This melting pot is obviously highly selective. This is why the idea of the melting pot idea never became more than an idea, unlike anglo conformity, a perspective that was clearly implemented in terms of government policy, educational programs, and individual behaviors. The melting pot myth was challenged immediately by people of color who argued that they were not included in the "pot." When melting pot advocates acknowledged the validity of this criticism, they usually responded by arguing that people of color should be included and/or would be included as time went on. In addition to the question of how much "time" would have to elapse before they were finally included, many people of color questioned whether they would even want to be melted into such a pot to lose their individuality in the cause of creating an anonymous and uniform "American."

Today, you can still hear echoes of the melting pot perspective when people advocate that we should be "color blind." Such people will say, "When I look at you I don't see color, I simply see an American." They are emphasizing the idea of "accepting" people as Americans, an acceptance usually based on the immigrant learning to speak English. We are, as many have said, a nation of immigrants, and the melting pot perspective believes that once the immigrant has learned to speak English, he or she should be perceived and accepted as an American. This is still a popular idea among politicians, writers and filmmakers (e.g. this perspective is presented in the film "Moscow on the Hudson"), but many people of color are offended by the "color blind" approach arguing that it is not a positive response to diversity in general or race in particular. To say you don't see color is to suggest that the speaker has some negative associations with skin whose color is other than white. The "color blind" approach pretends that everyone is white in order to like people and think well of them.

The problems related to the melting pot perspective were articulated soon after the birth of the concept, and the criticisms were so persuasive that even the creator of the concept, Israel Zangwill, rejected it and toward the end of his life became a separatist. Separatism may be the easiest perspective for most people to understand, but it is also the most problematic. It states that different groups ought to have their own place and

be with "their own kind" and "tolerate" other groups. To become a separatist, you need to believe in one fundamental premise: that ineradicable differences exist between different groups of human beings which inevitably cause hostility between individual members of these groups. It is a powerful albeit cynical premise with an inescapable conclusion. If you accept the premise, then the only realistic solution for harmony in a diverse society is for individuals to restrict themselves to their own group and keep all others at arm's length and hope that the different groups will agree to peacefully coexist. It is certainly the most pessimistic of the four perspectives on diversity.

The fourth perspective appeared shortly after the rise and fall of the melting pot. It was first explained in the 1920's by Horace Kallen (1970) who called it cultural pluralism, but it did not attract many advocates until recently. Pluralism was initially promoted by a number of minority organizations and then by various educational groups (e.g. the National Education Association) in the 1960's. It is the perspective which has influenced the development and promotion of "Design for Diversity" plans on University of Wisconsin campuses. The pluralist perspective views diversity as a positive attribute of our society. It promotes diversity as an ideal, as opposed to perceiving diversity as a danger or a weakness. The pluralist perspective does not merely accept the existence of diversity, it celebrates diversity!

This celebration of diversity is based on the idea that each of us has the right to maintain and be proud of our ethnic heritage. Since all of the ethnic immigrants have contributed to the richness of our society, it is appropriate to celebrate such groups as Italian Americans, German Americans, and Polish Americans. For the same reason, it is equally appropriate to celebrate the presence of racial minority groups as well, such as African Americans, Mexican Americans, Native Americans, and Asian Americans. The pluralist argues that it is up to each individual to determine how much of his or her heritage (its customs, traditions, and language) he or she wants to maintain.

The issue of preserving one's language has been misconstrued by critics of pluralism to suggest that pluralists do not want English as the accepted language for the United States. This perception contributed to the antagonism

that has arisen in recent years leading to the formation of groups advocating "English Only" legislation (as was passed in California) in various states, but this is not the pluralist position. Supporting the right to maintain one's native language does not mean that a person should not learn English. A society needs a common language and English is the common language in the United States, but people can learn English without having to lose the language spoken in their home. It has been done in Europe and Africa and elsewhere. It can be done in the United States. In a diverse society, people should not be forced to feel ashamed of their heritage nor forced to reject that heritage, including the linguistic part of their heritage. The pluralistic perspective argues that diversity enriches our society and diverse languages are part of this richness.

At the present time this society seems confused about the value of knowing other languages. I once heard Carlos Cortez speak about his experiences in elementary school with teachers who kept insisting that he not speak Spanish and concentrate on learning English. He did this so successfully that when he graduated from high school he received several scholarships for college. When he went to register for his freshman year, he suddenly realized that the liberal arts college he was attending had a language requirement. One of the languages they offered was the Spanish he had been told to forget. He signed up for Spanish and relearned the language he had spoken fluently as a child coming to kindergarten.

Finally, advocates of pluralism emphasize that the consequences of becoming a genuinely pluralistic society not only benefits people of color, but all of us. Perhaps the most concise statement of this argument appeared in an article written by Charles Williams for the Michigan Education Association:

> It is important to note that when an educational institution, with all of its parts, reflects only the Anglo aspects of a pluralistic culture, it does not merely damage the self confidence and self knowledge of (students of color), but is in fact an *embezzlement* perpetrated on the white students as well. One which allows (the white student) to sanction one language, to learn about one side of American history, to be exposed to only one musical tradition, to learn about one literature, one kind of art, to see and sanction one kind of world -- one that is white, monocultural, unreal and dishonest.

Given these four perspectives, it is obvious to many people that pluralism represents the most attractive option available, especially for a society becoming increasingly diverse. Yet, pluralism continues to be misunderstood, and for many, the ideal is still a "color blind" society. It is important to understand some of the most substantive arguments in support of pluralism if we are to become effective advocates for a pluralistic perspective at work, in school, and in neighborhoods.

Perhaps the most obvious reason for becoming an advocate for the pluralistic perspective is because diversity is a reality in our society. Diversity *exists* in the United States, yet none of the other perspectives views diversity in a positive way. If something is a characteristic of one's society, it makes more sense to view it positively rather than denying it and acting as if it wasn't there. Because we are diverse, we ought to view diversity as a strength.

One way to view diversity positively is to think of diversity as an ideal state, not as a burden on the state, to think about what diversity offers - alternatives, perspectives, a richer blend of ideas. Some of the greatest music and literature ever written was a consequence of an artist who creatively combined cultural traditions. Those who argue that English is the best candidate for being adopted as a world language emphasize that English has demonstrated an extraordinay capacity to absorb words from many different cultures, proving that it is flexible and that it can accommodate diverse changes as required by changing circumstances.

Another example of this argument was suggested in the Charles Williams quote. If a subject is taught from only one perspective, it is less interesting than if it is taught from alternative perspectives. I realized this point during my freshman year in college. I did not look forward to taking the required course in colonial U.S. history because I had studied this period so often in school I was bored with it, but my professor presented this period from the British perspective until we reached the "War for Independence" (what we call the American Revolution). This was the best history course I ever had. Having the familiar events and individuals presented from such a different perspective was thought provoking and exciting.

On a very basic level, people recognize that diversity represents an ideal situation. If you ask people whether or not they would want to live in a society where everyone dressed and talked and thought alike, the response you will usually hear is that people do not want to live in such a society. Their responses often include some variant of the cliche, "variety is the spice of life," or they will talk about how boring such a society would be or the more educated may refer to the failed experiments of totalitarian governments to create a society of such uniform, nondescript citizens. We are all unique individuals and in the United States perhaps more than in any other country we have always celebrated the individual. If individuality is so important, then why shouldn't we celebrate diversity?

A third reason for advocating pluralism would be the obvious failure of anglo conformity. This has been the dominant perspective since the United States began and it has been ineffective. Those who have not been able to conform adequately (i.e. those whose skin was not white) have paid a high price for their "nonconformity" in terms of disproportionate representation on unemployment statistics and welfare rolls. Other statistics reveal the price they pay in a higher infant mortality rate and a shorter life span. Goods and services, opportunities and education have been inequitably distributed based on skin color and gender and socioeconomic status and disabilities. Respect and self respect have been inequitably distributed as well, and that is not only an issue of equity but of ethics and simple human kindness.

The issue of self respect in particular is another reason for advocating pluralism. Each individual is shaped by his or her ethnic identification as well as other groups to which he or she may belong. Because pluralism affirms the value of such groups, it enhances the ability of individuals to develop an affirming consciousness of self. If an individual has a sense of pride, of self-worth, it is easier to determine one's goals and genuinely strive to achieve those goals. It is difficult to develop an authentic sense of self if society demands that you reject a group to which you belong, and the dilemma is exacerbated if the society seems to offer material rewards for rejecting your group and conforming to the standards and norms of the dominant group.

In a society dominated by the anglo conformity perspective, the struggle for one's sense of identity may not be resolved even when ethnic minorities achieve their goals. Instead, it is likely that they will now have to struggle

with peer group members suspicious of a minority who is successful in the dominant society. It is a common perception among various ethnic groups that being successful in the dominant society requires the ethnic minority to become white "on the inside," a concern reflected in derogatory labels within various ethnic minority groups which metaphorically suggest this perception e.g. oreo, apple, coconut, banana. Such perceptions are a consequence of anglo conformity and make it much more difficult for ethnic minorities to know and accept themselves, to be proud of who they are, and to set their sights on the achievements they want to make in their lives.

The final reason for advocating cultural pluralism combines all of the other reasons -- our dependence on one another. In any society, individual survival is based on effective interaction with other individuals. The more complex a society becomes, the more interdependent its people will be. In a highly technological society such as ours, that interdependence is a major aspect of the society. We rely on others to grow our food, to build our homes, to manufacture our cars and to make our furniture. As the number of retired workers increases, it becomes important for those still working to make high salaries to sustain the social security system. We rely on others to provide us with services from car repair to medical assistance, and we provide some portion of those goods or services to others as our part of the bargain. We need each other, and a pluralistic perspective recognizes that need and promotes positive relations between individuals from all areas of society, from all groups within society.

Our lack of a pluralistic perspective with regard to this issue of interdependence has created major problems for us in the past. For years, drug use was increasing throughout the ghettoes and barrios of urban America, but society ignored it because we didn't care what "those people" (i.e. black, brown, poor) did to themselves. Although people can be confined to a neighborhood, problems can seldom be similarly confined. By the 1960's, drug use was widespread among urban and suburban whites and by the 1980's drugs could be found all over the United States, including rural America. Now we have an enormous drug problem, and a major factor was our unwillingness to recognize our interdependence with "those people."

The same argument could be made for the AIDS epidemic. As a society we seemed to ignore the HIV virus at first because it seemed to be a problem only

in the gay community. Certain religious leaders even insisted that this was God's wrath on homosexuals, as if the virus was operating under divine intelligence to attack gay men exclusively in divine retribution for their sin. Even those who openly rejected this bigoted religious view acted as though the virus could distinguish a heterosexual from a homosexual and only infect the latter. As the virus spread into the heterosexual community, support for funds for AIDS research increased dramatically, but many lives were lost and more will be lost because of our reluctance to understand our interdependence as a people.

This interdependence is not only internal, but external as well as we move toward a global economy. Developing pluralistic attitudes and sensitivity to differences in culture and language are becoming an essential part of the business of doing business. This is not simply an ethical issue but a practical one with practical consequences. When General Motors' decided to market the popular Chevrolet Nova in South America, they didn't realize that "no va" means "doesn't go" in Spanish. Imagine the effect on American consumers if the Yugo had been marketed as the "Nogo." Another example, an appliance manufacturer decided to market refrigerators in the middle east and use the advertising campaign that had been successful in the United States. One magazine advertisement featured an attractive model standing in front of a refrigerator with the door open revealing an interior packed with food, including a prominently displayed ham. Since the Islamic religion prohibits eating all forms of pork, it is easy to imagine the impact of such cultural insensitivity on the Muslim consumers.

It is obvious from these examples that people in the United States need to know much more about people from other cultures if we are to compete successfully in the global market. We also need this knowledge if we are to cooperate successfully in the global community. Many colleges and universities understand this and are trying to move toward this goal but they are encountering considerable resistance. This is the basis of what has come to be known as the "political correctness" controversy. Some professors in higher education are challenging colleagues to change the curriculum of courses to reflect the diversity in our society and in the world, but for many people such a change would require considerable reading and learning because the new course content being demanded was not usually included in the courses these

professors took in the past. Rather than responding to this challenge, many professors merely complain that they are being attacked for not being "politically correct" and accuse the advocates for change of being antagonistic to Western traditions and values. Advocates for pluralism do not argue that Western traditions should no longer be studied, but that students are not well served if they only understand the world from a Western perspective. Students cannot be ignorant of other cultures, other perspectives in the global economy nor in our national community. Even assuming this was adequate in the past, it is not adequate for the future.

The future could turn out to be one with increasing global harmony, economic cooperation, and cross cultural influences in music, art, literature and more. If ethnic fragmentation is in our future, it will not be because the majority of people embraced pluralism as the best way to function in a diverse world. Ethnic fragmentation is more likely to be the result of one culture trying to impose itself on another. The response to this imposition is likely to be an aggressive affirmation of one's ethnicity and a rejection, possibly violent, of the group attempting such an imposition. The consequence would probably be a growing separatist sentiment that would pit one nation against another or one group against another within a society. Any effort to diminish differences by enforcing conformity would create a world where groups of people were living in uneasy, suspicious "tolerance" of their neighbors. Surely we can do better.

The changes that are required of us are not simple. We have much to do if we are to succeed, but if we can understand and agree on the need for change then change will come. This is not an issue of liberal versus conservative. It is an issue of improving our neighborhoods and our schools and our places of work. It concerns improving relations between people in a diverse society and improving that society. It concerns fundamental ideals about respecting individuals and providing opportunities for individuals to improve themselves. And at the heart of it, this issue is about appreciating and reaping the benefits of our enormous diversity, as John Naisbitt said in the quote at the beginning of this article. I will conclude with another quote, not from a contemporary liberal or radical reformer, but from a British author known as much for his conservative ideas as for his wit. In a passage from a book published at the start of the century, G.K. Chesterton (1906)

reflects on one of England's bitter enemies, and provides an eloquent argument for developing a pluralistic perspective in a diverse world:

> It is a great mistake to suppose that love unites and unifies men. Love diversifies them, because love is directed toward individuality. The thing that really unites men and makes them like to each other is hatred. Thus, for instance, the more we love Germany the more pleased we shall be that Germany should be something different from ourselves, should keep her own ritual and conviviality and we ours. But the more we hate Germany the more we shall copy German guns and German fortifications in order to be armed against Germany. The more modern nations detest each other the more meekly they follow each other; for all competition is in its nature only a furious plagiarism. As competition means always similarity, it is equally true that similarity always means inequality. If everything is trying to be green, some things will be greener than others; but there is an immortal and indestructible equality between green and red.

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IF MULTICULTURALISM IS THE ANSWER, WHAT IS THE QUESTION?
A Response to Kent Koppelman's Paper

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If the cultural pluralism model of assimilation is the answer to the current debate over cultural diversity in the United Sates, what is the question? The question is raised by those who view with suspicion any attempt to change a process of assimilation (Anglo conformity) which appears to have worked well for millions of European immigrants. The question is raised by political and intellectual leaders who hold to the belief that the institutions of government, church, and family have effectively served all sectors of the American public since the founding of the American republic. The question is raised by well meaning observers who view the current crisis in our public schools as a failure of the individual and not the society to efficiently challenge the political, social, and economic changes which have transpired in the last quarter century. Finally, the question is often raised by foreign observers from multiculturally diverse countries who view the American approach to assimilation as the ideal for fostering social harmony, equity and economic cooperation.

It is clear that the cultural pluralism model is challenged by competing and tested models of assimilation. It is also important to note that the cultural pluralism model, positioned between total conformity on the one hand and separatism on the other, hangs precariously between two opposing sentiments: Is the promotion of multiculturalism a panacea for all our societal problems or does it hold in its bowels a potentially disruptive and unstable element? Professor Koppelman's paper on the subject suggests quite clearly that the cultural pluralism approach holds far more promise and appeal than do the conformist and separatist models. In addition, he rejects the view that support for the pluralist ideal will contribute to the fragmentation of the American polity. He challenges the notion that bilingualism and the promotion of bilingual education are inimical to American society. Lastly, he refutes the idea that cultural pluralists have as their number one priority the rejection or undermining of the Euro-American literary and historical

traditions. Acknowledgement and respect for differing perspectives appears to be at the very core of the pluralist approach to teaching and learning. However, opponents of cultural pluralism will often argue that these principles of equity, and respect for the individual is what they espouse too. Quite often it is not the principles that are at issue. It is the interpretation and implementation of these principles where the potential for conflict arises.

The rest of my remarks will focus attention on some of the reasons offered by Professor Koppelman for supporting a multicultural curriculum. First he complains that it is wrong to close our eyes to the reality that we live in a linguistically and culturally diverse American society. According to the 1990 census, of the 248 million U.S. population, 22 million (9%) are Hispanics; 7 million are Asian/Pacific Islanders (2.9%); 1.9 million are American Indians, Eskimo, Aluet (0.8%); 29 million are African Americans (12%); and 187 million are White, Non-Hispanics (75%). Between 1980 and 1990 each one of these groups experienced growth except the White, Non-Hispanic cohort (1990 Census Profile - Number 2 - June 1991 Race and Hispanic Origin). The impact of this growth is particularly significant in the West where 67% of the population is White, not of Hispanic origin; 2% are American Indians and Aluet; 8% are Asian or Pacific Islanders; and 19% are Hispanics.

In contrast, the Midwest appears to be the least diverse with corresponding percentages of 86% White, 10% Afro-Americans, 1% Asian, 1% American Indian, and 3% Hispanic. The uneven distribution of the Non-white population in the U.S. mainland has several consequences. In those regions of the country where the racial/ethnic population is low the subject of race or ethnic difference appears to be minimal and considered inconsequential. Consequently, few educators see the importance of calling attention to the presence and history of Americans of color in the U.S. Strangely enough, this same condition has led to the formation of white supremacist groups who for any number of reasons, begin to view race as the major contributory cause for their poor economic condition or their changed circumstances. Historically, the target of such attacks have been Blacks, Jews, and Catholics. As the Hispanic and Asian population increases they too are likely to become targets of racism.

Immigration played a major role in the development of the U.S. The colonial period witnessed the establishment of English and other European settlements. From 1820 to 1900 the bulk of European immigration came from the Northern and Western countries of Europe. Between 1900 and 1920 the tide of immigration shifted from northern to southern and eastern Europeans. This sudden shift in the stream of European immigration resulted in great discomfort and consternation to the descendants of the Mayflower. The drastic change in the composition of the immigrants prompted a well known educator of the early 20th century to complain that:

> These southern and eastern Europeans are of a very different type from the north Europeans who preceded them. Illiterate, docile, lacking in self-reliance and initiative, and not possessing the Anglo-Teutonic conceptions of law, order, and government, their coming here has served to dilute tremendously our national stock, and to corrupt our civic life (Cubberly, 1909, pp.15-16).

Concern for this invasion of so-called "inferior" humans led to restrictive immigration laws, Americanization classes, and English language instruction for parents and students. The xenophobia of the 1920s also contributed to prohibitions of foreign language instruction and to the movement to reform urban schools where the majority of the new immigrants lived.

Today there appears to be a similar change in the U.S. population. Only this time the majority of the newcomers are coming from Latin America and Asia. Between 1820 and 1860, 95% of the immigration to the U.S. came from Europe. However, in the period between 1971 and 1980, over 75% of the immigrants have come from Latin America and Asia, and only 11% from all of Europe (Bouvier et al., 1986). Clearly, this dramatic shift in the U.S. population is having a serious impact on the nation's schools. In the states of New York and California, for example, ethnic minorities have influenced the social studies curriculum, have contributed to the implementation of bilingual education programs, and have increased the need for early childhood programs. While the ethnic minority population of some of our largest urban public school districts swells, the teachers in these schools have remained predominantly white and female (Griffith et al., 1989). In a most recent publication titled "A Demographic Look at Tomorrow" Hodgkinson asks the question "Who will assist new white teachers in discovering what their diverse

students are like?" (1992, p.9). The question is not meant to be rhetorical. It demands that we address this challenge in a concerted and timely manner. However, the approach to meeting this problem has been piece-meal and crisis oriented. Since the middle 1960s teacher training institutions have taught courses and provided direct field-based experiences for new teachers in the areas of culture and minority issues. The focus during this period was primarily to change the curriculum in the elementary and secondary schools. In the decade of the 1980s and 1990s the momentum in this area increased to include institutions of higher education. Today the movement is no longer confined to ethnic and women's studies. In many colleges and universities cultural diversity issues have been integrated into the core curriculum of the undergraduate course of study. In addition, students at many institutions are required to study these issues in specific courses.

What has been the contemporary response to the demographic changes in the last 25 years? The federal, state, and private sector responses have been mixed. Some sectors have stressed the need for strengthening the Anglo-conformity approach. Others have sought a more humane and positive approach to working with a culturally and linguistically diverse student population.

Professor Koppelman's faith in the American ideal of individual freedom, opportunity, civil rights and responsibilities appears to be a recurring theme in American history. Competing and contradictory themes in American history are the concerns for political and social stability. Another perennial issue is the open-door immigration policy of the U.S. National debates on the question of national character or to the question "Who is an American?" have often collided with the changing patterns of immigration.

Shortly after the American Revolution, European immigration slowed until the 1820s. During this period of over forty years the descendants of the early colonial settlers worked on developing the American political and cultural identity with its corresponding heroes, symbols and ideals. Central to the debate over national identity after the 1840s was the question of how close to the American political character were the newcomers to America. Westward expansion fueled the need for continued immigration. As the immigration flow increased towards the end of the 19th century, the immigrant presence did not appear to alter the political arrangements and privileges of the more

established Americans. However, elements of xenophobia became evident in the 1840s with the creation of the Know-Nothing Party. Members of this secret party rallied against the forces of economic and political change by targeting Catholics and the so-called foreign element in the country as the cause for their economic and social problems. The German immigrants for the most part bore the brunt of this attack. But by the turn of the century the concern over the increasingly plural character of the nation was borne by other European national and ethnic groups.

Between 1900 and 1924 the question of national identity was vigorously debated by the advocates of the three competing models of assimilation: Cultural Pluralism, the Melting Pot, and Angloconformity. During this period, Horace Kallen argued that the "pluribus" segment of the American population needed to be respected and allowed to flourish within the confines of American principles of freedom, opportunity, and civil rights and responsibilities. He did not see the maintenance of ethnic enclaves as incompatible with the American civic culture. The passage of the National Origins Act in 1924, however, greatly diminished the immigration of eastern and southern Europeans to the U.S., dampening the heated debates over "foreigners," political loyalty, national unity, and American citizenship. Between 1911 and 1920, 49.9% of the European immigration came from southern and eastern Europe. By the 1930s the flow had been drastically reduced to 27% (Bouvier et al., 1986). It is not until the period 1954 to 1965, marked by the Brown decision against segregated public schools and the passage of the 1965 Immigration Act, that the debate over cultural and linguistic differences resurfaces. This time the debate centers on civil and constitutional rights for black Americans and the expansion of these rights to other newly recognized ethnic and social groups.

During the past 25 years sociological theories of assimilation have dominated the discussion over the place and merits of the "unum" and the "pluribus" in American society. In the book The American Kaleidoscope Race Ethnicity, and the Civic Culture, Lawrence H. Fuchs suggests that there is another way of examining and explaining the persistence and dynamics of ethnicity in American life and the continuation of the American polity to the present. According to Fuchs' historical model, between 1620 and 1798 we see the creation of the American myth, characterizing America as a place where the poor were welcomed, a place where men and women were at liberty to do and act

in ways that promoted their self-interests, a place of opportunity to advance in a virgin land with bountiful resources, and a place where a reward for hard work was a certainty (1990).

Fuchs contends that belief in the myth motivated the early settlers to create political practices and institutions which supported their economic and social opportunities, i.e. freedom of religion, speech, and association. Thus, the period 1798 to the 1840s contributed to the development and sustenance of what he has called the "civic culture." This term, coined in 1965 by political scientists Almond and Verba, is described as a widespread:

1. belief and consensus on the legitimacy of political institutions and public policy;
2. tolerance for conflicting ideas and the idea of conciliation and compromise; and
3. political competence and trust in the citizens to govern themselves (Fuchs, 1990, p.5).

The "civic culture" idea was based on the belief widely held by the founders of the American republic that:

1. men could be trusted to rule themselves via elected representatives;
2. men could participate in government on equal terms; and
3. individuals could differ from others in a community with respect to religious beliefs and other practices as long as they behaved themselves as good citizens (Fuchs, 1990, p.5).

Fuchs suggests that from its inception the American experiment encouraged and believed in what he has termed "Voluntary Pluralism." This meant that individuals could maintain loyalty to ancestral religions and cultures while claiming to be an American by accepting the founding myths of the society and participating in the political life of the republic.

The relationship between ethnic identity on the one hand and allegiance to the nation on the other, has been described by other scholars as acceptance of the "core culture," the "macroculture," or the "supra-ethnic culture" (Fishman, 1972). But regardless of the term used to describe this societal phenomenon, there appears to be a delicate balance between an individual's civil and constitutional rights to maintain and promote religious, linguistic, ethnic identity and the needs of a society for harmony and security. At the very core this relationship between the individual and the state appears to be a uniquely American <u>modus vivendi</u> operating from a pragmatic belief in the need for a balance between the needs of society and those of the individual.

According to Fuchs the emergence of the "civic culture" can be traced to the early colonial settlement patterns, practices, and socio-economic needs in the states of Massachusetts, Pennsylvania, and Virginia. In Massachusetts the early settlers felt that there was a need to screen potential settlers for their allegiance to God and acceptance of the rule of the community. Immigration was restrictionist and based on religious allegiance. Another term for this outlook is Anglo-conformity. Pennsylvania, on the other hand, encouraged the entrance of linguistically and culturally diverse groups on roughly the same political terms as native-born Americans. This idea is the equivalent of the Cultural Pluralism approach articulated by Kallen early in the twentieth century. Lastly, the Virginia idea capitalized on the importation of indentured servants and later slaves to provide the labor in the colonies, but did not allow this latter group to participate in the political discourse of the community until it was forced to change by military action, court decisions, and federal legislation. In a way this idea corresponds to the "Melting Pot" concept in that immigrants, slaves, and American Indians were coerced to change, to be "like us," but without a corresponding promise of acceptance into the political, social, and economic structure of the society (1990).

The forces which have contributed to the formation of the American polity as we know it today appear to be the same whether we view these changes from a sociological or an historical perspective. It appears, however, that the "cultural pluralism" or the "Pennsylvania Idea," has been the most appealing because of its pragmatic approach and its similarity to the founding principles of freedom, tolerance, and opportunity for the individual as clearly articulated by the founders of the American experiment. In his review of multicultural education 16 years ago Professor Mark Krug was convinced that:

> Kallen's slogan, unity in diversity, is as important today as it was forty years ago. There is no evidence that America is in the process of becoming a multi-ethnic society. Neither is there reason to believe that the United States may develop into another AustroHungarian Empire or that bilingualism and multiculturalism may create for us the problems that plague Belgium and Canadian Quebec. The many millions of ethnically aware Americans will probably continue their efforts to preserve their language, cultural heritage, and values, but they will do so in the frame of reference of the great changes that occurred in the eighty years

> that have elapsed since the period of the great immigration. In the course of these decades, America, while generously allowing for the existence of separate minority groups, has become one nation (Krug, 1976, pp. 15-16).

This statement shares the view of many who are attracted to the multiculturalist approach, namely that it simultaneously responds to the needs of society and to the needs of the individual citizen. It is neither separatist nor conformist. It values the individual's contributions to the whole and respects the right of the person to form meaningful patrimonies with his cultural heritage, language, and racial/ethnic roots. It appears that the principles of cultural pluralism and those articulated by the framers of the American republic converge and complement one another. The principles often take divergent paths, one path conservative, jealously guarding the benefits of cooperation and societal harmony, the other path liberal, zealously protecting the rights and opportunities of the individual. By arguing that our economic and social ties to one another is the focal point of the pluralist approach to cultural diversity in society, Professor Koppelman reaffirms the American faith in individual liberty, participation in the political process, and confidence in the ability of humans to govern themselves. The arguments in favor of multicultural education in our schools by Professor Koppelman are both pragmatic and humane. His approach takes a centrist view of human interaction, offering a balance between the needs of society for stability and the needs of individuals for economic and cultural survival.

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ENVIRONMENTAL EDUCATION IN WISCONSIN

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Rolling terrain, unglaciated Coulees, moraines, Great Lakes with fertile lakebed plains, and the Nation's "Middle Border," the Mississippi River, its tributaries and drainage basins have defined, characterized, and contributed to the development and sustaining of agriculture and forestry as major industries and key economic bases for Wisconsin. Sustaining and maintaining productivity in the Dairy State has encouraged early awareness and actions on behalf of the environment. Wisconsin's environmental education efforts were initiated earlier and to a greater extent than has occurred in any other State in the Nation (Biennial report, 1991).

Expertise and contributions of Wisconsinites to environmental education are recognized nationally and internationally. Celebrated "favorite sons" included John Muir and Aldo Leopold who made major contributions to the development of the knowledge base of the emerging field of study, Environmental Science. Since the 1940's and in particularly since Earth Day in the 1960's, state legislators have drafted and passed model laws which mandate and provided financial support for environmental education as a part of K-12 public school curriculum and teachers preparation programs. The Department of Public Instruction (DPI), changed with the implementation has provided leadership to enable and encourage exemplary environmental education. Since 1967 the DPI staff has included a state level supervisor for environmental education. This has given visibility and leadership for environmental education as a curricular area with equal status to other school subject areas such as reading, mathematics, and science. The DPI Bulletin #6094, "Guide to Curriculum Planning in Environmental Education," published in 1985 was constructed by a task force which included teachers, naturalists, ecologists and the state education supervisor. It has not only guided the infusion of environmental education in Wisconsin schools but has been used by more than 45 other countries as a model for establishing their national environmental education programs (Engleson, 1991).

In the remainder of this paper, the contributions of historical factors outlined will be elaborated. I will begin with challenges to develop a working

definition of environmental education and the goals established for it in Wisconsin. Then the laws governing the development of teachers to be able to deliver educational experiences which match these goals and representative examples of infusion lessons and programs will be presented.

What is Environmental Education?: A workable definition.

Efforts on behalf of the environment have arisen out of multiple perspectives. Leaders like John Muir, a naturalist, who promoted Nature Study and the aesthetics, to develop an appreciation and concern about the conservation of natural environments. Aldo Leopold, the father of wildlife management, used a more scientific approach to study and encouraged respect and responsible behaviors to develop and maintain balanced, quality existence for species (Leopold, 1949). In schools, leaders like Julius Smith instigated school camping programs and outdoor education to instill in the increasingly urbanized youth an understanding and appreciation for natural environments and the outdoors. Scientists, labeled ecologists, emerged to denote and develop the theoretical knowledge base about the interrelationships and interdependence of all living, nonliving matter and energy in specific environments. Nature study, wildlife management, natural resource conservation, outdoor and conservation education, and ecology are only part of the, albeit essential, contributors to the thrust behind the development of environmental education as a part of schooling experiences. They contribute to a variety of attempts to define environmental education by others.

In 1969 Swan attempted to define environmental education by stating desired outcomes and what it is not. He stated:

> Environmental education may be conceived as being directed toward developing a citizenry that is knowledgeable about its environment and its associated problems, aware of the opportunities for citizen participation in environmental problem solving, and motivated to take part in such problem solving. It might be said, therefore, that environmental education is concerned with developing informed attitudes of concern for environmental quality.
>
> Environmental education is different in that it is concerned with involving people in environmental problem solving. It makes no claims to making people naturalists. Undoubtedly many students exposed to an environmental education program would become

> interested in nature, but this is a secondary benefit rather than a primary aim. (p.29)

The 1985 Wisconsin Department of Public Instruction Publication Bulletin #6094 Curriculum Planning in Environmental Education (DPI Curriculum Guide), likewise used an implied definition rather than providing a comprehensive definition which could serve to guide and assess environmental educational activities, experiences and programs. The goal statement presented in the DPI curriculum guide is as follows.

> The goal of environmental education is to help students become environmentally knowledgeable, skilled, dedicated citizens who are willing to work, individually and collectively, toward achieving and maintaining a dynamic equilibrium between the quality of life and the quality of the environment. (p.5)

Neither Swan nor the DPI guide provide a definition which enables and facilitates the discerning of what knowledge is exclusively within the field of environmental education and has resulted in confusion about environmental education as an "infused" part of the required curriculum both in Wisconsin and elsewhere. This confusion is not limited to School District personnel attempting to establish environmental programs but seems to be an ongoing debate even within professional environmental education association members. Odom Fanning discussed this confusion in the July/August issue of Environmental Communicator, the North American Association of Environmental Educators newsletter. He states (underlining added for emphasis),

> Environmental education has a "definition problem" (John Disinger's term in a 1983 essay). My view of the problem is that <u>the environment is not a discipline</u>; therefore, environmental education is unlike medical education, whose graduates use engineering techniques to build, or management education, whose graduates use management techniques to manage. The environment, to repeat, <u>is not a discipline but a focus of many disciplines</u>. Therefore, I think the adjective "environment" always needs to be followed by a noun: engineering, management, sciences and studies are all good ones. Then, a third word, education, may be appended so at the higher-education level, we are talking about "environmental engineering education" to cite one example. (p.5)

A clear definition for environmental education is sought as the 1990's unfold and the DPI Curriculum Guide is revised. Those undertaking the revision have turned to the epistemology and the roots of environmental education,

environmental science, to lend clarity in a definition which delineates environmental education as something more than ecology, nature study, or conservation of natural resource education, but less than outdoor education. These epistemological roots define environmental science as having humans and their actions as related to quality balanced environments as the central focus for the work of environmentalists.

An epistemological understanding of a discipline as opposed to an inter- or multidisciplinary field of study view of knowledge enables the analysis of environmental education as a combination of environmental science and education (Jacobs, 1989). Synthesis of this view provides a defensible definition for environmental education which provides the workable definition needed to guide K-12 curriculum practices and teacher preparation.

In 1987, Anderson, Berswenger and Purdom describe Environmental Science as rooted in parent disciplines of the Natural Sciences and Social Sciences (See figure 1). Subdiscipline areas which contribute to the study and meaning given to any environmental situation include the Natural Science subdiscipline areas of Chemistry, Physics, Genetics, Physiology, Ecology, and Geology and the Social Sciences subdiscipline areas of Psychology, Sociology, Political Science, and Economics as well as the mathematical and engineering knowledge used in these sciences. No environmental situation is understood unless both a social science and natural science perspective is brought to bear on it and give meaning to it. Key areas of concern for study which require this dual view for understanding include: wildlife management, sanation, Forestry, Agriculture, Land Use Planning, Industrial Processes, Energy, and Population Control. With the driving force behind such work as the accumulation of knowledge which enables survival, availability of resources, and a quality life for humans. Understanding the interrelationships of natural and built environments as they determine the quality of life for humans is the essence of environmental science (Anderson, et. al., 1987).

Although some argue today for an epistemological view of education as a discipline most still perceive education as a field of study which borrows key theories, skills, and judgment criteria from the Social and Natural Sciences. Education is a process of providing experiences which enable another to learn or develop their own knowledge structures. Public education was designed to facilitate this knowledge development in students.

Synthesized, Environmental Education is the provision of experiences to another which facilitate the development of knowledge about how humans interact and interrelate with both natural and man-made environments to promote a balanced quality existence. The central focus is the "MEN" in Environ"men"tal. To be environmental education requires that how humans impact and effect an environment be the decisive determiner of a learning experience. Such an epistemological view of environmental education provides not only clear criteria for constructing and assessing learning activities but also supports the inclusion of environmental education as a part of all subjects, infusion, rather than a separate subject to be taught in isolation or only an integrated approach in schools. Hence, although the earlier DPI Guide lacked such a definition, it implied such a definition in its advocated teaching approach and in the identified broad goal statement for environmental education. Such a definition was also supported by the Tibilsi Declaration, the intergovernmental position statement developed at the first "Earth Summit" held in 1977 in Georgia, USSR (Engleson,1985). This international agreement on behalf of the environment, was upheld and expanded in "Agenda 21" the position statement of the Earth Summit in Rio de Janeiro, Brazil in June 1992 (Connect, 1992). It clearly defines environmental education as a multidisciplined area or field of study which encompasses the parent disciplines of the natural sciences and social sciences as having equal importance and contributions to environmental issue resolutions.

Goals for Environmental Education and Their Achievement:

Since 1935 Wisconsin legislators have required that all elementary and high school students be taught environmental related content. The early focus was on conservation education while recent efforts have broadened the goals and requirements to be environmental education. Since 1985 the goals, language, and practices have mandated that each of the 433 Wisconsin school districts develop, implement, and evaluate a K-12 sequential curriculum program for infusing environmental education into all subject areas, with the greatest emphasis on art, health, science and social studies (Engleson, 1985). These goals, established as minimum standards, are described in the DPI Curriculum Guide.

This guide defines specific goals for different grade levels as well as a collective goal of attitude development for each grade level (See Table 1). The sequential development of major goals which proceed from awareness to knowledge, to skills, to participation, are congruent with the epistemological bases of environmental education as a field of study and with Piagetian stages of development. In addition to defining specific major and minor goals for each grade level, a detailed outline of the content, skills, and attitudes students are to acquire across the K-12 grades is given (Engleson, 1985).

Foremost is the K-12 major goal of "Attitudes." Every student is to experience learning activities which develop positive attitudes of respect and responsibility for the quality and care of environmental factors on an individual as well as collective basis. In addition, at the K-3 levels the emphasis is on the development of an awareness of the components in environments and the difference between man-made and natural environmental components. As students mature, this factual base, rooted in the primary process skills, is expanded into learning the central concepts and theories that define a quality environment from a natural and social science perspective. Once an understanding of the base propositional knowledge about balanced quality environments is known, the emphasis shifts to development of the skills related to studying and analyzing the balance or unbalanced nature of an environment. Middle/Junior High major emphasis is thus on skills associated with asking researchable questions, exploring values, researching and problem-solving processes. The sequence culminates at the High School level with "participation" to develop the citizenship skills associated with being an environmentally literate citizen. Thus, the sequence of major goals provides the necessary knowledge, skills, and attitudes from both the natural and social science perspectives to enable graduates to function as effective problem-solvers as well as the attitudes set which motivates them to want to be actively involved in their community to achieve a balanced, harmonious existence.

The recommended teaching approach to achieve these learning outcomes, infusion, is also supported by the epistemological roots of environmental science as the base for environmental education. Infusing or interjecting environmental education content into existing curricular lessons minimizes the time required to teach environmental education while bringing a practical

relevancy to other subject content or skills. For example, when learning about sets and subsets, sorting and counting, or percentages in math, students can use human garbage and practice these skills to understand the amount of recyclable and nonrecyclable waste each of us produces and the impact of not reusing on the natural environment. Or, at the Junior and Senior High School levels, the study of genetics, gene-splicing can focus on the reduction of pesticides needed with resistant hybrids and the shortening of hybridization generation time by the advances gene insertion and removal techniques have had on vegetable and other agricultural and health industry product production and employment.

In addition to the direct, short-term, or lesson based infusion, the inclusion of longer time-framed value clarifications/analysis experiences and action plans are encouraged for older students. For example, the role-playing or use of a simulation exercise such as "Dragon Fly Pond" can be used to illustrate the development and passage of laws or the work of local land use planning office at the middle or Junior High level or for a civic course local government unit. While developing an understanding of the social studies content students examine their own held values and learn about how humans determine the preservation or modification of natural habitats (Project Wild-Aquatic p. 143). Both activities require more extensive planning and multiple experiences in the classroom to be completed as a part of a unit. Infused action plan activities likewise involve more than one lesson time-frame. Many examples exist in the State where teachers have infused a project across the entire year. School recycling programs have been extended to become community efforts. Environmental clean-up projects of a class have included the renovation of the school forest site into a community recreational resource, while other teachers have collected data on local streams, rivers, or lakes across years to involve students in direct actions to improve the environments of their community. The success stories are many and too numerous to comprehensively cover. The learning outcomes achieved have influenced not only student but also community behaviors. However, all successful action plans are rooted in the attitudes and efforts of one classroom teacher who decided to invest the time and energy to make infusion happen. It requires a thoughtful coordinated planning of instruction to make environmental education infusion rather than separate lessons or units in the

curriculum (See Example 1). Successfulness with infusion requires the teacher to either creatively generate the experience on their own or to be able to adapt an idea from others or commercial resources to meet the needs and Wisconsin goals.

The successfulness of environmental education in Wisconsin schools has been mixed and varied with increasingly more successes. In response to Disinger's 1987 survey of state level supervisors responsible for environmental education the Wisconsin position was stated as:

> By September 1988, every school district will have to encorporate EE into curriculum plans for all areas, with the greatest emphasis in art, health, science, and social studies.
> .....To many educators, teaching "units" is "infusion" but I would call this "insertion" and consider it as separate from the rest of the curriculum as a special course would be. To me, "infusion" means that EE is built into the teaching of just about everything. We are striving for "infusion" of the latter sort in Wisconsin, but I am afraid that most teachers use a unit approach.... We have about 70 separate high school courses in environmental studies. As we promote infusion of EE throughout the curriculum we will not discourage such courses, but will try to encourage teachers involved to make them much more issue-oriented than they are currently. (p.135)

Recognizing the need for assistance to inservice teachers in an understanding of infusion, state legislators passed Wisconsin Act 299 on the 20th anniversary of Earth Day. This law provided permanent funding for the Wisconsin Environmental Education Resource Center at the University of Wisconsin-Stevens Point and provided $200,000 annually for matching or incentive grants to develop, disseminate, and evaluate environmental education programs for inservicing current teachers and collaborative efforts within the nonformal and formal educational structures to develop exemplary educational experiences for youth. Thus, the financial assistance and resources as well as an identified location for assistance has been established for assisting the school districts without established curricular plans, revamping plans which do not use an infusion approach, and for inservicing teachers about the differences between infusion and integration of curricular subjects.

Law & Licensure Requirements Related to Teacher Preparation:

Legislators in Wisconsin have long recognized that school practices are slow to change and that the teacher is the critical factor in the type and quality of educational experiences students receive in schools. Wisconsin legislators have not left change to chance in teacher preparation for environmental education. In the 1935 era licensure to teach preparation required that elementary and secondary teachers have a four credit course in the Conservation of Natural Resources as part of their program of study. In essence, Wisconsin required this environmental education related preparation prior to either a required science or social studies methods and curriculum course. In 1983 new licensure requirements were established to replace conservation education with environmental education.

Wisconsin Administrative Code PI 3.05(4) details the current content and methodology which all those seeking teaching licensure must have. It states:

Wisconsin Administrative Code PI 3.05(4)

Environmental education. Effective July 1, 1985, adequate preparation in conservation of natural resources is required for a license to teach early childhood, elementary education, agriculture and for secondary education licenses in science and social studies with the exception of philosophy, psychology, and religious studies. Programs shall provide students with the following knowledge:

(a) Knowledge of the wide variety of natural resources and methods of conserving these natural resources;

(b) Knowledge of interactions between the living and nonliving elements of the natural environment;

(c) Knowledge of the concept of energy and its various transformations in physical and biological systems;

(d) Knowledge of local, national, and global interactions among people and the natural and built environments including;

1. Historic and philosophical review of the interactions between people and the environment;
2. The social, economic, and political implications of continued growth of the human population;
3. The concept of renewable and nonrenewable resources and the principles of resource management;
4. The impact of technology on the environment; and
5. The manner in which physical and mental well-being are affected by interaction among people and their environments.

(e) Ability to use affective education methods to examine attitudes and values inherent in environmental problems.

(f) Ability to incorporate the study of environmental problems in whatever subjects or grade level programs the recipient of the certificate or license is permitted to teach through the use of the following methodologies:

1. Outdoor teaching strategies;

2. Simulation;
3. Case studies;
4. Community resource use; and
5. Environmental issue investigation, evaluation, and action planning.

(g) Knowledge of ways in which citizens can actively participate in the resolution of environmental problems.

Thus, effective July 1, 1985 new teachers are prepared with an understanding of the fundamental natural and social science knowledge of environmental science and the infusion methodologies associated with planning, implementing, and assessing learning experiences which are congruent with the epistemological roots of environmental education. Recently prepared, newly hired, teachers are providing a base of knowledge about environmental education to move the separate ecology, nature study, natural resource conservation or science-technology-society unit plans and confusion over "infusion" status into dynamic exemplary infusion based programs throughout the state.

Infusion Lesson and Program Exemplars:

Exemplary resources for assisting teachers with environmental education have abounded since the first Earth Day in the 1960s. However most of these resources are not developed or structured to be infused environmental educational experiences as written. Often lessons suggested are ecology with little or no mention of the human interactions and relationship to the quality of an environment included. The effective use of these resources requires a clear understanding of environmental education and skills in interpreting and augmenting suggested activities to meet the infusion model. Inservice and preservice teacher preparation in environmental education focuses on the development of these interpretation and translation skills, as well as adaptation of general environmental issues presented to local situations and conditions. To illustrate this interpretation, translation, and adaptation a set end products from courses and consultant work with La Crosse area teachers are included.

The first exemplar illustrate planning for infusion with a particular predetermined field trip for art site with first and sixth grade level students (See Example 2). Objectives for environmental education infused

learning are cross referenced with the outline for content presented in Chapter 2 of the DPI Curriculum Guide (Engleson, 1985).

Example 1: Field trip infusion

University Art Gallery Field Trip Site

Grade levels and subjects for Infusion:

I would take the first grade and the six grade children to this field trip site for art.

Description of Site Visit:

Many times I have strolled through the University Art Gallery, located in the Fine Arts building at the University of Wisconsin-La Crosse. The University Art Gallery is open to the public and free of charge, thus the problem of expense is not as severe as other possible field trips. The particular art exhibit that I viewed was on by a female artist, Amy Cordova. Her bright colored exhibit was entitled, "Dark Lady Dreaming," and included paintings and quilts. I attended the exhibit alone on May 10, 1990 from noon to 1:30 p.m., so that I would not feel rushed as I admired and pondered upon each piece of art. Cordova paints and stitches her message of the misery of discrimination as she depicts the Disappeared Ones of Central America. One of the pieces I enjoyed most of all was called "The Well." It was a quilt with different colored ponies drinking at a well. Cordova was quoted in an article in the La Crosse Tribune as she described the quilt, "The ponies are coming from all directions to the center, the life spring. We all come from different directions but we all need to drink from the same well."

This particular exhibit will not return to UWL in the near future, but I found the gallery to be an excellent site for a field trip for an art class of all ages. It is important to note that artists are recorders. They are recorders of a culture. Through music, literature, painting and other forms, artists create the idea that a certain culture existed. The gallery is not very large, but large enough to easily hold a typical size class. Bathrooms are large and easily accessible, as they are located right next to the gallery. The gallery holds exhibits all year round.

Several key things in art galleries that can be related to environmental education are:

1. Landscape and nature scenes that were painted in the past can be compared with those painted today or with the environment as seen around us.
2. Art elicits certain feelings from those that view it. Students will be able to respond to those works depicting the out-of-doors, and can describe the importance of the out-of-doors expression.
3. Can serve as an awareness activity. Artists are recorders of the world. The gallery will develop the child's willingness to receive stimuli through the senses. It will provide the children with methods of perceiving the world and responding to it.
4. An art gallery exhibits many different types of art forms. Some paintings may be of different geographical areas that a child has not yet had the opportunity to see or learn about.
5. Due to the types of exhibits, a study on nature as a source of art materials and inspiration for people may be developed.

Infusion Teaching Procedure

Concept 1: A. Methods by which human activities, local through global, are harmonizing with ecosystem processes are complex and outcomes are not always predictable.
2. Harmony can be pursued through practice of various art forms to develop human sensitivity to and appreciation of environmental quality. DPI

Concept 2: D5. Human activities affect ecosystem maintenance and management.
b. Potentially destructive activities of humans within ecosystems include:
depleting relatively concentrated sources of raw materials. DPI

Grade 1 Objective:

After the field trip to the art gallery, every first grade student, when asked by the teacher, will use leaves, dried seeds, and other natural materials to create forest creatures (real or imaginary) to become aware that nature can be used as a source of art materials and inspirations for people.

Procedure for Infusion into Art

Prior to the field trip to the University Art Gallery, the students will have discussed the concept of nature as a source of art materials and inspiration for people, as well as the potential impact of use of the environment for art materials including negative effects through misuse. Upon returning from the

fieldtrip as a part of art, the children will be asked to complete the making of a forest animal as described in the objective above. The materials that will be used should be gathered from the natural world. If weather permits, the teacher may have students do this. If the students do this, talk with them about the importance of taking care not to do damage to the environment in the process of gathering the materials to be used. In this lesson, the first grade students would also be learning how to use their creativity and hand coordination, as well as to view the world around them for ideas.

Grade 6 Objective:

After the field trip to the art gallery and the discussion on the feelings elicited from the students in response to paintings depicting the out-of-doors, and also their feelings about the importance of the out-of-doors to artists' expression, every sixth grade student, when asked by the teacher, will complete a set of two drawings, one of an out-of-door scene as a clean area and one of this area as it will appear in the future if actions are not taken to clean up the environment.

Procedures for Infusion into Art

Prior to the field trip to the University Art Gallery, the students would have discussed the importance of artists as recorders of aspects of the environment. In a discussion the students will be shown pictures by various artists depicting forest scenes. Discuss the pictures using such questions as:

If you were in the picture, what might you hear? See? Smell? Feel?
What kind of place is this?
What colors do you see? How do they make you feel?
What could you do if you were there?
Where is your favorite place in the picture?

Upon returning from the field trip, the students will be asked to complete the drawings described in the objective above for their art lesson. In this lesson, the sixth grade level students will also be learning how color affects the mood of a drawing, how to draw from different perspectives and growth in shadowing techniques.

The second exemplars are again daily lesson infusion plans. The "Importance of Wetlands" is infused into a science lesson on the water cycle with the environmental education content coming from a commercial resource activity which has been modified to address a local marsh development situation (See Example 3). The "Checking Out the Neighborhood" plan is an

example of infusion into social studies with the district social studies as well as environmental education goal specified (See Example 4). This infusion idea and activity were taken from an urban based commercially available environmental education program and adjusted for a rural/small town situation.

Example 2: Daily Lesson Infusion

Importance of Wetlands

Unit: Air, Water, Weather (water cycle, Wetlands)

Grade: 4

Concept: Wetlands are important to wildlife and humans. They provide breeding and rearing habitats for wildlife, are natural filtering systems to purify the environment, absorb excess water for flood control, are a resting place for migratory birds, mix nutrients and oxygen into the water, strain silt and debris, neutralize toxic substances, and provide nutrient-rich food for animals.

Prior Knowledge: The students will have learned about the water cycle.

Exposing Event: Present the controversy over putting a road through the La Crosse River marsh.

Procedure: See Aquatic Project Wild "Wetland Metaphors" p. 49.

Evaluation: Give the everyday metaphor objects, the students will explain the importance of wetlands to human and wildlife.

Title: Checking out the Neighborhood

Source: Living Lightly in the City

Subject Lesson/Unit: Social Studies Exit #6
Lesson-Community Homes/Towns-Basic Needs

Environmental Ed: Appreciate the importance of natural resources to people and the place where they live.

Materials: Paper, crayons, pencils, notebooks, chalkboard/chalk

Procedures:
Brainstorm in a group discussion about what a neighborhood is and what it needs to exist. Designate students to be note takers and go on a field trip paying close attention to:

1. Shelters
2. Places people work
3. Nature found within community

Students will report and discuss all evidence found.

How do each of these parts work?

Is one more important than the other?

Did we find any examples of this on our walks?

What would happen if one disappeared?

Students will draw pictures independently and share what the community would look like with a missing part.

Evaluation: Students draw a picture of a community without one essential component.

Variations:
1. Carry it further by discussing an animal community. Think about what we do to take something away (pick an animal to discuss).

2. Share a book about a community working together.

The third exemplar is an outline of an infusion program designed for across-the-year infusion for third graders that annually have a field trip to the school district's forest (See Example 5). Careful coordination of lessons across the year enabled these teachers to redesign or adjust activities to take advantage of the classroom and school forest site. Pre, on-site, and post activities were designed for some environmental content to a) make the most out of a one day time-frame at the forest, b) provide more indepth over time learning, and c) to coordinate infusion in different subject areas where appropriate (See Example 6 & 7). Note that evaluation of environmental learning occurred in the selected sequential examples only with the culminating infusion lesson in Language Arts. It involved the use of journaling and oral communication skills. In total, the third grade school forest program included 7 pre-site activities, 6 on-site acitivities, 5

post-site activities with 39 other alternative activities, and 10 special needs student modified activities for a teacher in the district to add or adjust to meet their particular classroom of students' needs. In constructing this program teacher generated ideas and activities based on seven different commercially available programs were used.

Example 3: Infusion in a Program

THIRD GRADE SCHOOL FOREST ACTIVITY GUIDE BOOK
OUTLINE

I. Cover (Guide book placed in 3-ring binder)

II. Table of Contents

III. Introduction
  A. Environmental Education Infusion Process
  B. Field Trip Proceudres
  C. School Forest Materials Kis
  D. Trail Observations

IV. Proper School Forest Facility Use
  A. Trail Map

V. How to Use the Activity Guide

VI. Activities
  A. Pre Vist
  B. On Site
  C. Post Visit

VII. Community Resources

VIII. Alternate Activities

IX. Sources of Activities

SCHOOL FOREST
PRE

Title: Rotting Logs

Source: Hands on Nature p. 100

Subject Lesson/Unit: Science - Role of Decomposers

Environmental Ed: Science #5 Exit #2

Know that animals interact with their environment and understand the importance of plants and animals in the environment. The student will be given the opportunity to be aware of the senses.

Materials: Script for puppet show or play, puppets

Procedures: Use the script and read as a play or use the puppets to introduce the concept that a rotting log can provide a home for many different animals.

Evaluation:

ROTTING LOGS PUPPET SHOW

Characters: Rocky Raccoon, Benji Bear, Charlotte Spider, Wendy Worm

Props: A real or constructed rotting log, a piece of paper with "directions" on it taped to a stick.

Rocky Raccon: Benji Bear, I've been looking for you. As king of the forest you must have a list of all the individual homes around here.

Benji Bear: I sure do. Are you in need of a home, Rocky Raccoon?

Rocky: Yes, I am. Nothing too fancy, no moss-to-moss carpeting or anything. Just a fairly dry place with a roomy hole for me to stay in.

Benji: I know just the home for you Rocky. It has a soft, comfortable floor and thick, well-insulated walls. I'm sure you'll find it a perfect, snug home for the winter. Just follow these simple directions and you'll have no trouble finding it. (hands him a piece of paper)

Rocky: Thanks a lot, Benji.
(walks off; Charlotte Spider appears)

Charlotte Spider: Hey, Benji, I'm in need of a home, too. Do you have anything for me?

Benji: What kind of place are you looking for Charlotte Spider?

Charlotte: The older the better, with a lot of little cracks and crevices for me to crawl under and through. I need a safe place for my sac of eggs and a spot where I will be protected and warm enough to spend the winter.

Benji: I've got the perfect place for you, Charlotte. This home will help protect you from predators and be a great place for you to find food. These directions will show you how to get there.
(hands her same paper and Charlotte walks off; Wendy Worm appears)

Wendy Worm: Oh Benji, can you help me? I'm having a terrible time finding a home.

Benji: Sure, Wendy Worm. What kind of home do you want?

Wendy: Us worms go for damp soil. It offers all the comfort and conveniences of ground life. I'd like a soft place with lots of rotting things so I can find good food.

Benji: Well, it just so happens I know of a place with nice, rich, damp soil. Here are the directions to get there.
(hands her the same paper)

Wendy: Thank you, Benji. I knew I could count on you.
(log comes up; Rocky and Wendy each approach it from opposite sides)

Rocky: This rotting log over here must be my new home.

Wendy: Your new home! Benji Bear told me it would be my new home.

Charlotte: (creeping up over the log) Hey, you guys, quit the joking. This is my new home.

Rocky and Wendy: Your home!

Rocky: We can't all live in the same place. I'm a raccoon and I need solid walls and nice dry leaves.

Charlotte: I'm a spider and I like small spaces to hide in and places to catch my food.

Wendy: And I'm a worm. I'm a prisoner inside solid walls, and dry leaves are rough on my skin. I like dirt, myself, where I can move around easily.

Charlotte: I don't know. What do you think, audience? Could we all use the same rotting log for our homes? (wait for answer)

Rocky: There's a nice big hollow space at this end for me.

Charlotte: The middle of the log has great places for me to crawl around in and plenty of juicy insects to eat.

Wendy: Well, I can live over at this end where the rotting wood has almost turned to soil.

Rocky: So, I guess we all <u>can</u> live together. (yawns) I better go test my new bed. (leaves)

Charlotte: This rotting log provides a nice home for each of us. I think I'll hide behind here and wait for dinner. (leaves)

Wendy: So it doesn't matter that I'm a worm and he's a raccoon and she's a spider. Life in this log is good for all of us. I better go burrow in that damp soil; this dry air is too much for me. Bye, bye everyone. (leaves)

SCHOOL FOREST
SITE

Title: Rotting Logs

Source: Hands on Nature p. 100

Subject Lesson/Unit: Science - Role of Decomposers

Environmental Ed: Science #5 Exit #2
Know that animals interact with their environment and understand the importance of plants and animals in the environment. The student will be given the opportunity to be aware of the senses.

Materials: Hand lenses, rotting logs, script for puppet show or play, puppets, materials for journal.

1. Kneel around a rotting log with their eyes closed.
   Listen (tap on log) does it sound hollow, solid, wet, or dry?
   Smell--Does it smell wet or dry? Like anything they've smelled before?
   Feel--Does it feel hard, soft, wet, dry, rough, or smooth?

2. Predict what creatures may be found.

Use a hand lens to investigate what's inside, under it, and on top of it? (Return log and inhabitants to place where found)

SCHOOL FOREST
POST

Title: Rotting Logs

Source: Hands on Nature p. 100

Subject Lesson/Unit: Science - Role of Decomposers

Environmental Ed: Science #5 Exit #2
Know that animals interact with their environment and understand the importance of plants and animals in the environment. The student will be given the opportunity to be aware of the senses.

Materials: Journals

Evaluation: The students will:

1. Sharing circle--sit in a large circle and discuss what they learned about rotting logs.

2. Journal writing--The students will respond to "The thing I liked best about the rotting log was...." or "The thing I liked least about the rotting log was...."

The last exemplar is a subset of an established third to eighth grade infusion of the Mississippi River as a teaching resource for science and environmental education plan (See Example 8 & 9). Note that while not all infused river lessons address environmental education the majority do so. The matrix illustrates the use of many available teaching resources and the complex task involved to carefully coordinate for infusion within one subject area across grade level. It is an example of the thought and difficulty which is a part of structuring the sequential K-12 infusion based environmental education program for a district to meet mandated standards.

GRADE 3 SCIENCE SCOPE AND SEQUENCE

UNIT	CONTENT	RIVER INFUSION	ACTIVITY*
Plants/ Simple Organisms	Seeds: definition, characteristics, germination, scattering of; Seed plants: characteristics, plant parts, life cycles	River as mode of seed transportation	(HON) "Seed Scavenger Hunt" p. 27 - adapt for floating seeds. (OBIS) "Seed Dispersal"
Animals	Needs of living things; producers; consumers; scavengers; decomposers; food chains and webs	Stream life producers, consumers, scavengers, and decomposers. Food chain of river birds.	Stream field trip study. (CSEEG) "Food Chain Simulation" p. 172 - use mallard duck food chain

Ecology	Habitat: definition; types of habitats; conservation of habitats	Fresh water marsh habitat. Stream habitat. Influence of humans on marsh habitat.	La Crosse River marsh field trip. (APW) "Designing a Habitat" p. 19. (NS-WW) "Create a Scene" p. 5. (APW) "Where Have All the Salmon Gone?" p. 103 - adapt to include marsh road controversy
Human Health	Cells: defnition, characteristics; tissues; organs; organ systems; body defenses against disease; diet; drugs and poisons; effects on the body, safety.	River coliform count.	Speaker or information from city Health Department
Air, Water, Weather	Evaporation; condensation, clouds; precipitation; climate; water cycle: stages, definition.	Fog formation over rivers. Water cycle-river, marsh, groundwater, wells	Marsh walk observation. (NS-WW) "Wetland Models" p. 11. (APW) "Wetland Metaphors" p. 49. (SES) purify water by filtering activity p. 354. (GSG) "A Plume of Contamination"
Rocks, Minerals, Land	Minerals: definition; igneous, sedimentary, and metamorphic rocks; earth layers; weathering; erosion.	Wind and rain erosion of riverbanks. River as carrier of sediment.	(APW) "Where Does Water Go After School?" p. 75. Stream table demonstration
Space	Apparent size of objects; Earth and moon characteristics: gravity, surface features; moon exploration; revolution; rotation; moon phases		

Matter	Matter: definition, properties, states; matter changes state; mixtures; compounds	River in 4 seasons shows changes in matter of water.	River observation.
Forces & Energy	Forces: definition; gravity; friction; work: definition; energy: definition; simple machines; compound machines; safety	Steamboats on the river. Machines used by commercial fishermen. Machines used in locks and dams on the river.	(SC-SM) "Paddle Boat" p. 16. Commercial fisherman speaker. Field trip to lock and dam.

*See Activity Resource Sheet.

GRADE 4 SCIENCE SCOPE AND SEQUENCE

UNIT	CONTENT	RIVER INFUSION	ACTIVITY*
Plants/ Simple Organisms	Green plants; using plants as raw materials; flowers; seeds; plant reproduction.	Photosynthesis of aquatic plants. Cattails, arrowhead plants, rice as used by Native Americans. Emergent aquatic plant flowers and seeds. Plants prevent riverbank erosion.	(SES photosynthesis activity p. 442-use watercress. (NS-WW) "A Taste of Wetlands" p. 50. (APW) "Water We Eating?" p. 113. (^APW) "Water Plant Art" p. 11 (SES) Erosion activities p. 310
Animals	Behavior; reflex; instinct; learned and social behaviors	Behavior of the muskrat. Mississippi River flyway migration route.	(NS-AM "Sea Otter Picture Books p. 16-adapt for muskrats. (APW) "Migration Headache" p. 87. (NS-BBB) "Migration Models p. 31. Investigate Mississippi River Flyway.
Ecology	Adaptations for survival; Body parts adaptations; special adaptations.	Adaptations of aquatic insects. Special adaptations of river fish.	(HON) "Life in a Pond Puppet Show." p. 115. (APW) "Fashion a Fish" p. 81-adapt for aquatic insects.

Human Health	How we see; eye problems; eye care; lenses. How we hear; ear parts; hearing. Good health habits: exercise, sleep, cleanliness, diet, nutrients, food groups, nutrition.	Swimming as exercise.	
Air, Water, Weather	Oceans and seas; properties of ocean water; ocean movements; ocean life; ocean floor features; protecting the ocean	Properties of river water; river movements; river life; river floor features; protecting the river.	Compare river (water, movements, life, floor, conservation) to the ocean. (NS-DO) "From Surface to Sea Floor" p. 29 - adapt to river. (NS-PPS) "Go with the Flow" p. 64. Speaker to demonstrate sonar use on the river.
Rocks, Minerals, Land	Using rock fossils; fossil records; using fossils.	Mississippi River valley fossils.	Mississippi Valley Archaeology Center presentation
Space	The sun; comparing stars; solar eclipse; the planets: orbits, inner planets, outer planets; asteroids; comets; meteoroids: meteors; meteorites		
Matter	Earth's composition; identification of minerals; mineral properties; rocks; mineral mixtures; useful rocks and minerals	River as mineral transportation. Minerals dissolve in river water. Rock quarries on Mississippi River bluffs.	Identify minerals in river water. (SES) Sedimentary rock activities p. 299. Investigate local rock quarries and their uses.

Forces & Energy	White light; reflection; refraction; color. Properties of sound; behavior of sound. Parts of atoms; static electricity; current electricity; magnets: behavior; magnets and electricity	Water reflects and refracts light. Color adaptations of fish. River sounds. Power plants with steam turbines located on the river. Hydroelectric power.	Observe how the river reflects and refracts water. Investigate color adaptations of fish. (NS-LHH) "Call of the Wild" p. 26. (PW) "Wild Words...A Journal Making Activity" p. 59-adapt to river sounds. (SES) Turbine activities p. 356.

In summary, while the content and activities used to develop environmental goals vary, Wisconsin can be proud of the tradition, leadership, and current efforts expended in relation to environmental education. The revision of the DPI Curriculum Planning guide, established Center for Environmental Education, and legislated grant incentive efforts point to a purposeful and fruitful future that includes environmental education as an essential part of the schooling experience and results in citizens that continue to value and protect the environments which provide the economic base for this State.

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Ideological Change and Curriculum Transition in Teaching about the Legacy of the Third Reich in East German Secondary Schools

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A visit during the summer of 1992 to the site of Buchenwald concentration camp near Weimar in the former German Democratic Republic (GDR) called to mind the importance of ideological shifts in determining the kind of legitimized history that each generation of school children receives at the hand of the state. During the years leading up to the dissolution of the East German state and the collapse of the Berlin Wall in 1989, pupils visiting Buchenwald received historical interpretations about the Holocaust wholly circumscribed by the Marxist-Leninist tenants of the German Democratic Republic. East German children studying history in the ninth class of the polytechnical school learned that Hitler's rise to power was made possible primarily by his fated alliance with monopoly capitalism (Bleyer, et al., 1988, pp. 93, 116).

The Nazi killing fields of Buchenwald, a site of over 65,000 murders of Soviet prisoners, Jews, homosexuals, Jehovah's Witnesses, Christians, Social Democrats and resistance fighters between 1937 and 1945 became a memorial after the war emphasizing the struggle of the Soviet and German "Anti-Fascist Resistance" (Guenther, 1971, pp. 478-482). Almost totally omitted from consideration were the deaths of 10,000 Jews and numerous other groups. The history of omission legitimized for young East Germans continued with yet another blatant exclusion. Buchenwald eventually continued as a concentration camp under Stalin and the Soviet occupation which used it as a site for incarcerating their own political prisoners. Thirteen thousand ex-Nazis and opponents of the new communist regime died of starvation and mass executions in the camp between 1945 and 1949, a historical development kept carefully hidden from what East German pupils came to know about the Stalinist era until recently (Ritscher, 1986, 1-21; Fisher, 1991).

The secrecy orchestrated by Moscow concerning the Soviet mass murder of Polish officers in Katyn Forest after Stalin's conquest of eastern Poland in 1939 represented another striking parallel in the power of the state to

legitimize an ideologically acceptable history curriculum through omission, distortion and falsehoods, a practice not uncommon to both totalitarian and democratic states (Lyons, ed., 1976, pp. 10-13; Zinn, 1980, pp. 570-582). In a significant way, the Buchenwald concentration camp memorial symbolizes the ongoing power of ideology in the complex process of legitimizing what school children should or should not know about the Third Reich in the New Germany. This legitimization process is central to what Raymond Williams called "selective tradition" or "an intentionally selective version of a shaping past and a pre-shaped present, which is then powerfully operative in the process of social and cultural definition and identification" (Williams, in Luke, et al., eds., 1989, p. 58). Following the delegitimation of Marxist-Leninist ideology and the end of the Cold War the new Buchenwald administration, now headed by west German historian Thomas Hoffman, framed another selective tradition under a broad historical perspective emphasizing the mass murder of victims at the hands of both the Nazis and the Soviet occupiers. A historical commission chaired by Eberhard Jaeckel from the University of Stuttgart drafted a series of recommendations in 1991 calling for a "pluralistic reorientation" to the camp and attaching importance to the Buchenwald memorial as a symbol associating united Germany with an essential part of its National Socialist past (Gedenkstaette Buchenwald, 1992, p. 3). No longer would a narrowly-conceived "staatlich-verordeten Antifaschismus" (state decreed anti-fascism program) be the order of the day as it once served the propaganda machine of the GDR and the history curriculum of the polytechnical schools (Wegner, 1992, pp. 475-491). Under the New Germany, Buchenwald would reflect a "correspondingly fair presentation on the fate of various groups of victims, a correct presentation of the resistance movement and a stronger consideration for the role of perpetrators" (Gedenkstaette Buchenwald, 1992, p. 9).

A shift in the language used to memorialize heroes once canonized by the former German Democratic Republic is evident although, in some cases, the change is rather uneven when compared with the almost immediate vetting of East German history textbooks after 1989. A plague honoring Ernst Thaelmann, the former chairman of the German Communist Party who died in Buchenwald in 1944, still hangs on the outer wall of the cremation building. He is remembered as "a great son of the German people, and leader of the German working class, murdered by fascism." Plans are apparently underway to create a

new plaque for Thaelmann which will read simply, "Chairman of the German Communist Party, imprisoned and murdered here" (Fisher, 1991). The ideological retooling of Buchenwald's new educational mission for children and the public at-large represents the dominant inspiration for this study. Buchenwald is a microcosm of larger attempts initiated by the Bonn government to legitimize a selective tradition rooted in West Germany and an economic system widely perceived as the major factor in the victory of western capitalism in the Cold War. This situation does not suggest that historians in the Federal Republic of Germany speak in one voice about the legacy of the Holocaust. On the contrary, especially heated debates continue in German academic circles to this very day about the meaning of Nazism for modern German history prompting Gordon Craig to describe the conflict as "the war of the German historians" (Evans, 1989, pp. 118-140; Craig, 1987, 15-19).

Using Buchenwald as a point of departure, this study examines developments in secondary level history textbooks and teaching plans instituted for Greater Berlin with a specific focus on Hellersdorf, one of the newest suburbs to join the municipality of Berlin before the fall of the Berlin Wall. Hellersdorf, with a population of 110,000, has three Gymnasien (classes five through twelve with transitional plans underway for class thirteen) with construction planned for a fourth Gymnasium in 1993 (Berlin-Statistik, 1991, p. 28.2). Hellersdorf is rather unique in that many of its citizens live in relatively modern apartment houses some of which were built through an aggressive construction program initiated by the former GDR and continued under the new regime. A hallmark of Hellersdorf are the seemingly endless rows of six-story apartment complexes which, compared to the older district of Treptow, are solidly constructed relatively pleasant in appearance.

The study extends to the Gymnasium, a form of elite secondary school organization which remained discredited under the former GDR because of its association with capitalist class privilege. The GDR thereby formed the ten-year polytechnical school with a curriculum more closely attuned to preparing youth for the needs of an industrial, centrally-planned economy. The Gymnasium is now growing in popularity among parents in the five new Bundeslaender who now see the elite school structure as a promising possibility for the upward social mobility of their children. Such a profound change in secondary school

structure for eastern Germans contradicts the claims of greater social equality and the desirability of the worker state once symbolized by the polytechnical school and the GDR (Fishman and Martin, 1987, pp. 161-163). The polytechnical school model continues in eastern Germany, but increasing numbers of adolescents are cramming the halls of the Gymnasium. First, the investigation turns to a consideration of school political and economic factors influencing the state of history teaching and curriculum formation in the secondary schools of eastern Germany.

Ideological Transitions and History Teachers in Eastern Germany

At the current time, history teachers in eastern Germany are experiencing a phenomena relatively common in the relationship between educators and the German state during the twentieth century. Concerted ideological purges of history teachers in Germany from the elementary school through the university have taken place three times within the last sixty years. The first purge came during the Third Reich after 1933, with the second purge occurring under the auspices of the Allied occupation and the most recent transpiring with the reunification process (Jarausch, 1990). The current purge forced the dismissals of many teachers because of their activities in the Socialist Unity Party, the former Communist Party of the GDR, or for entering contractual agreements to work concurrently for the Stassi or East German Secret Police. With public access now granted to the newly-opened Stassi files, additional investigations of teacher political activities under the GDR continue at the time of this writing.

Those teachers directly involved with history instruction or Staatsbuergerkunde (civics), two subjects especially ladened with Marxist-Leninist ideology under the GDR, were among the first educators to come under suspicion as the reunification process continued. As in the occupation era following the defeat of the Third Reich in 1945, teachers entered a screening process through the use of the Ueberpruefung or questionnaires to determine their ideological reliability under the new system. The process remains complicated by the fact that activities in the Communist Party were considered part of the job for many teachers and public sector employees.

The purge also influenced the formation of school administration and university faculty involved with the preparation of teachers. About 95 per cent of the new principals are former mathematics or science teachers since these teachers were less active in the Party. During the winter of 1989-90, education authorities in western Germany decided to shut down the entire philosophy, journalism and history departments at the University of Leipzig (Rodden, 1991, 285-289). The Department of History Didactics at Leipzig, charged with the responsibility for the methodological training of history teachers, had seven faculty before reunification and now claims only two members (Interview with Antonious Wollschlaeger, Leipzig, June 25, 1992). In the midst of these shifting school political conditions are a series of wide-ranging economic dislocations making the ideological transformation in eastern German schools even more difficult. Public school teachers in the five new Bundeslaender received a salary adjustment recently giving them salaries of between 60 to 70 per cent of what their colleagues in the western Laender are paid. The discrepancy remains a cause of some resentment among teachers in the East and, in the eyes of some educators, complicates the recovery efforts of their families. The massive reconstruction programs in public works and environmental restoration undertaken by Bonn in eastern Germany offers a rationale for this salary differential and the fact that only 10 per cent of the budget for eastern reconstruction in 1991 was spent on education. The state of the economy in the East offers the bitter realization that the reunification process demands a high price from citizens in both the old and new Bundeslaender. Since June of 1990, industrial production fell 50 per cent in eastern Germany with an attendant rise in unemployment. The 120,000 secondary school pupils in the East graduating during the summer of 1991 would find only 40,000 job openings (Rodden, 1991, 285-289). These sobering statistics offer an essential context for understanding the school atmosphere influencing ideological transformation in the Gymnasium history classrooms of the new Bundeslaender. As in all cultures, history teachers and pupils under the new regime would struggle with the essential question about whose history should be preserved. The dark legacy of the Third Reich sharpens the difficulty of the task.

Ideological Change and Teaching about the Legacy of the Third Reich in Berlin-Hellersdorf

For the first time in over four decades, Gymnasium teachers in Hellersdorf have the opportunity to choose from a broad selection of history textbooks for their classrooms. Under the GDR, choice in textbook selection did not exist. The only state-sanctioned publishing house, Volk und Wissen, published textbooks for virtually all school subjects. Today, history teachers can choose from texts published from old and established firms, mostly located in the old Bundeslaender under such well-known business names as Klett from Stuttgart, Diesterweg from Frankfurt-am-Main, Westermann from Braunschweig and Schoenigh from Padderborn. Volk und Wissen continues under the same business name out of its headquarters in Berlin with offices in all five new Bundeslaender, but conducts its affairs under a new financial structure and the capitalist ownership of Luechterhand publishers from Darmstadt. The business name of Volk und Wissen still remains in order to provide the teachers of eastern Germany with a transitional link for textbook purchases, but with one very important qualification. Volk und Wissen publishes a variety of new textbooks in almost all areas of the curriculum except for history and civics, formerly among the primary school subjects used by the GDR to communicate Marxist-Leninist ideology to the young (Volk und Wissen, Verlagsprogramm, 1992).

Notable transitional problems continue while another level of history curriculum standardization continues across the New Germany through the mass distribution of textbooks published in the western Laender. The history staff at Gymnasium #3 in Hellersdorf currently uses Geschichte und Geschehen 10 from Klett in Stuttgart (1988, edition N), edited by Hans Ballhausen, one of the most popular history texts for Gymnasium students in all of Germany. Teachers at Gymnasium #2 chose Geschichtsbuch 4 from Cornelsen in West Berlin (1990) edited by Peter Huettenberger and a circle of historians from Braunschweig, Duesseldorf, Oldenburg, Freiburg and Bielefeld.

The call by the Historical Commission at Buchenwald for a "pluralistic orientation" to the recent Nazi past is notable on one level in these two texts written for pupils from sixteen to seventeen years of age. Predictably, in contrast to the history text on the Third Reich legitimized under the former GDR by Wolfgang Bleyer and Volk und Wissen (1988), the text authors

from Klett and Cornelsen omit monopoly capitalism as the dominant cause for Hitler's Machtergreifung. Replacing the Marxist-Leninist ideological perspective is a neutralized approach to multiple causation for the rise of the Nazi dictatorship. Pupils using these texts study long range causes including the legacy of the Versailles Treaty, the Great Depression and the political malaise of the Weimar Republic along with the short range perspectives of the Reichstag Fire and Hitler's effectiveness as a political speaker (Ballhausen, ed., 1988, pp. 78-91; Huettenberger, ed., 1990, pp. 101-127). This integration of multiple events and historical processes, while it offers a broader perspective on the causes of Nazism, is marked by an illusory kind of neutrality. The two texts written for school children in the New Germany, like the former Marxist-Leninist approach to the Third Reich in the history text Geschichte 9 (1988), present an illusion of consensus about the place of the Third Reich in modern German history. Stripped from consideration in the new texts are not only the Marxist-Leninist perspectives on the causes of the Third Reich, but also a sense for the raging debates and arguments raised by western German historians and German society as a whole in recent years over the burden of German guilt for the crimes of Nazism (Evans, 1989, 3-23). The democratic capitalism of West Germany provided room for the articulation of considerable disagreement among eminent historians like Andreas Hillgruber, Ernst Nolte, Joachim Fest and Marin Broszat and the public at-large over the Third Reich, but this same sense of controversy over historical interpretation remains largely unreflected in the texts from Klett and Cornelsen. Thus, what appears to be a pluralistic orientation to the Third Reich actually becomes the seedbed for sowing an illusion of consensus over the past among the young in the New Germany where no real consensus exists. Such an illusion is certainly not restricted to the New Germany. The illusion of consensus over historical causation, often times supported by the selective traditions of each culture, is an element present in the programs for the ideological training and political socialization of the young in many societies (Olson, in Luke, et al., eds., 1989, pp. 233-244; Apple, 1982, pp. 1-10).

Similarly, the illusion of consensus is extended to the problem of corporate business interests and the Holocaust in the two texts. Both works devoted more attention to the dark night of the Holocaust than many history

textbooks written for German adolescents from the previous generation (Huettenberger, ed., 1990, pp. 154-163; Ballhausen, ed., 1988, pp. 104-117, 143-150; Wegner, in-press, 1993). The close ties between the German corporate state and the concentration camps are highlighted in a limited sense in the Cornelsen text thus preserving at least a partial continuity with the former GDR history textbook interpretation of the death camps and the involvement of German business interests (Bleyer, 1988, p. 169). Detailed in the book are primary source documents linking the giant corporation I.G. Farben to the network of forced labor camps (Huettenberger, 1990, pp. 156-58). However, the history of omission proved to be more significant than the formal history recorded in the text. Conspicuous in its absence is any mention of the role played by Siemens, the Bavarian Motor Works (BMW), and Krupp Steel --- three international corporations active in the Federal Republic today --- in the formation of forced labor and death camps. What was once part of the propaganda grist for history instruction on the Third Reich in the GDR and a pretext for a strong East German condemnation of corporate capitalism and neo-Nazism in the West remains excluded by the new ideological assumptions about history instruction for the New Germany.

The power of historical interpretation circumscribed by ideology is further reflected in the problem of the resistance movements during the Third Reich. Even though the Widerstandsbewegung in Germany during the Third Reich involved only a minute segment of the German population, the activities and sacrifices of the Resistance gained prominent attention in the two history textbooks. It is in this here where the formation of heroes for the political socialization of youth in the New Germany finds one of its most strident voices. In contrast to the time before die grosse Wende (the fall of the Berlin Wall), the history texts published by Klett and Cornelsen for school children in West Germany broadened the political scope of participants in the Resistance against Hitler through including at least general references to the Red Orchestra and German Communists without mention of specific notable figures associated with each group. Gaining a much stronger emphasis are the assassination attempt made by the Stauffenberg Circle, the White Rose and resistance developments in the churches. The White Rose and the resistance activities of Hans and Sophie Scholl at the University of Munich represented an especially strong model of Zivilcourage for the youth of the New Germany in

the two texts (Huettenberger, 1990, pp. 150-153; Ballhausen, 1988, pp. 151-155). Those seeking some kind of memorial to Ernst Thaelmann, the former chairman of the German Communist Party who died in Buchenwald at the hands of the Nazis, are invariably disappointed. His name, once framed with Karl Marx, Vlademir Lenin, Walter Ulbricht and Ernst Honnecker as part of the pantheon of heroes for East German youth, is not mentioned once in these texts.

The power of choice and the exercise of critical judgement in matters associated with the teaching of history brings a mixed blessing to some educators under the new system. Textbook selection, although a significant consideration in the legitimization of the history curriculum for the new Bundeslaender, constitutes but one level of curricular reality. Under the GDR, history teachers received very specific Richtlinien or teaching guidelines which directed teachers from week to week on matters of content coverage within a singular Marxist-Leninist ideological framework (Ministerium fuer Volksbildung, 1988, pp. 3-96). With the new Rahmenplaene or content area teaching plans instituted for Berlin and the new Bundeslaender, teachers are required in most instances to exercise critical evaluations in order to decide how much emphasis will be placed on each unit of teaching and what questions should or should not be raised in the classroom (Senatsverwaltung fuer Schule, Berufsbildung und Sport, Berlin, 1990, pp. 1-45).

More flexibility is written into the Rahmenplaene so that the heavy hand of the state, at least in this respect, is no longer present. However, this new found flexibility in establishing teacher ownership over what pupils should or should not know about contemporary German history is meeting mixed reviews among teachers. Siegfried Heimann from Berlin's Central Institute for Social Science Research discovered a strong resistance from history teachers in this regard when he conducted teacher seminars in Land Brandenburg and the city of Magdeburg on the Weimar Republic and the Third Reich. Before 1989, teachers could rest assured that one interpretation represented the Party Line. Now, a certain kind of cognitive dissonance returns to some teachers over the difficult challenge of raising more than one historical perspective on controversial events and issues from the past. Heimann became the target of considerable anger and frustration from teachers who yearned for what they perceived as simpler times in the teaching of history before the initiation of

the reunification process (Interview with Siegfried Heinemann, Berlin, 25 June 1992).

Subsequent interviews with teachers in Hellersdorf and Siegfried Heimann's teacher training seminars in Brandenburg and Magdeburg suggest that teacher reactions to the current ideological transition in history instruction on the Third Reich are anything but monolithic. Three colleagues in Berlin-Hellersdorf expressed an entirely different set of reactions to the new Rahmenplaene. Like his fellow-teachers, Axel Guenther from Gymnasium #3 once attended the polytechnical school with its strong emphasis on Marxist-Leninist political socialization, a development which continued through his university studies and training in history didactics at Humboldt University. As one who survived the purges and taught history for the past six years, Guenther observed how much more he had to learn in order to teach multiple historical perspectives on the Third Reich. (About 40 per cent of the teachers in his building lost their positions during the purges. The school now has 482 pupils with 32 teachers). Herr Guenther felt that one of the biggest advantages coming to history teachers in eastern Germany as the result of reunification was a new found freedom to integrate a multiplicity of teaching sources and historical interpretations from outside the textbook, but added that teaching history was "far more complex" than ever before. A major source of historical documents for his pupils on the Third Reich came from the teacher journal entitled, Geschichte Lernen 24 (1991) a rich resource of documents from the era published in Frankfurt-am-Main (Interview with Herr Axel Guenther, Berlin, June 15, 1992).

In Gymnasium #2 (800 pupils and 50 teachers), history teachers Karsten Damerow and Torsten Berger were on the beginning edge of their careers under the new system. Graduates of Humboldt University and the University of Halle, respectively, the two educators noted that the biggest challenge for them was integrating multiple interpretations of history on the legacy of the German Democratic Republic, not the Third Reich, where for them the ideological transformation for teachers was much more understandable and clear. That this sentiment about the relative importance of East German history might be related to generational differences among history teachers in the new Bundeslaender was not something wholly clarified by the small size of the Hellersdorf interview sample. Both teachers felt it important that pupils in

Hellersdorf develop some kind of knowledge and understanding for the recent past including the Third Reich, but especially the history of East Germany of which they were all generationally a part. To accomplish this connection with the most recent past, Damerow and Berger consider both the positive and negative dimensions of the GDR's legacy in their classrooms (Group Interview with Thorsten Berger and Karsten Damerow, Berlin, June 17, 1992).

Every culture invariably decides what kind of history will be legitimized for the political socialization of its youth. In the midst of a rapid and difficult reunification process, the New Germany, borne from what were two intrinsically different political cultures, must now continue the difficult task of forming a new history for pupils who only a short time ago learned historical process under the Marxist-Leninist regime. Just how complicated this ideological transition remains for teaching about the Third Reich and other sensitive historical issues was symbolized by the words of a teenager in Meissen. A history teacher in that city recently introduced new history textbooks from West Germany as part of a unit of teaching on the Cold War and the Marshall Plan. The class initially discussed a textbook passage which criticized Stalin's refusal to accept American aid. When the teacher tried to balance the passage with a Soviet perspective, a fifteen-year-old burst out: "Don't you know? Nobody believes that propaganda anymore. The Russians were the imperialists, not the Americans" (Rodden, 1991, pp. 285-289).

The pupil observation raises the disquieting notion that history curriculum change through rapid ideological transformations are interrelated processes much more complicated than often assumed by educational researchers and historians. The commentary also indicates the need for more serious research on the formation of pupil attitudes in eastern Germany toward the teaching and learning of history on the Third Reich, a dimension of ideological transformation in schooling largely unaddressed in this essay. Although some initial work completed by Wilfried Schubarth from the Center for Youth Research in Leipzig sheds new light on changes in political thinking among former GDR youth (1990, pp. 350-356), much more focused investigation of youth attitudes toward the legacy of German fascism is necessary and remains further justified by the growth of right-wing extremism and neo-Nazi

activities among youth in both the old and the new Bundeslaender (Hafeneger in Butterwege and Isola, eds., 1991, pp. 150-156).

The selective traditions represented in the formal curriculum on the Third Reich in West Germany for use in the classrooms of Berlin-Hellersdorf and the new Bundeslaender remain marked, like the history instruction legitimized by the former GDR, by an illusion of consensus. With Germany's headlong rush toward political and economic reunification, the danger continues that the New Germany may pass the way of many cultures by falling to the temptation of legitimizing a "unified" interpretation of the past to protect the interests of those in power. Buchenwald today might hold an essential answer to this vexing and ancient problem for history teachers in the New Germany searching for a more critical intellectual encounter with the legacy of the Third Reich.

In the summer of 1990, education director Helmut Rook at Buchenwald organized the International Youth Meeting Place for the purpose of setting up workcamp programs and "encounter days" with the past for adolescents combining archival research, discussions with camp survivors, historical seminars and museum visits on the bitter legacy of Buchenwald from both the Nazi and Stalinist eras. Under the conceptual heading of "Encounter, Understand and Preserve," some pupils were even involved with archeological work at Buchenwald unearthing items ranging from eating utensils and clothing pieces from the soil around the old train station. The sessions continue to the present day and sometimes bring together young people from the old and new Bundeslaender as well as other countries once numbered among the belligerents of World War Two (Rook, ed., 1992, pp. 1-44). The Buchenwald experience reminds history teachers that seriously engaging young people in studying the bitter legacy of Nazism invariably demands taking a less popular pedagogical approach. This usually means going beyond the textbook and the narrow confines of ideological conformity as well as avoiding the illusion of consensus over the dark corners of the past.

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CROSS-CURRICULARITY AND THE WHOLE CURRICULUM: BRIDGING THE GAP BETWEEN CURRICULUM THEORY AND CURRICULUM POLICY MAKING

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Four years after the passing of the Education Reform Act in 1988 it is still possible to express surprise at the speed with which the curriculum of state primary and secondary schools in England and Wales was transformed from a decentralised, unregulated, school-determined curriculum to a highly centralised, tightly regulated national curriculum. Students of the curriculum have sought to describe and explain the processes which led to this transformation and they have sought to provide rationales for the national curriculum as it continues to evolve. In this review paper we focus on one facet of the national curriculum in England and Wales, the attempt to provide for curriculum coherence in secondary schools when the statutory requirement is for a fragmented subject-based curriculum. We shall highlight some of the discussions engaged in by philosophers and sociologists who have addressed the foundations for a whole curriculum and this will be followed by a resumé of the principles and practice pertaining to the recent, post 1988, development of cross-curricularity.

Some Philosophical Considerations

The question of how to divide knowledge into subjects has preoccupied philosophers who have sought to clarify what it is to be educated and what constitutes the knowledge base for the educated person. Wellington (1986) argues that the quest for a common core curriculum should lead one to the writings of Immanuel Kant. He suggests that Kant's 'transcendental deduction' was an attempt to prove that '12 definite "categories" are both unique and necessary for a complete understanding of the natural and moral worlds' (Wellington 1986, p.5). Kant's twelve categories were divided into four sets of three: '(1) of quantity: unity, plurality, totality; (2) of quality: reality, negation, limitation; (3) of relation: substance-and-accident, cause-and-effect, reciprocity; (4) of modality: possibility, existence, necessity' (Russell 1946 p. 734). Russell comments, 'These are subjective in the same

sense in which space and time are - that is to say, our mental constitution is such that they are applicable to whatever we experience, but there is no reason to suppose them applicable to things in themselves' (p.735). This emphasis on the subjectivity of category systems is what needs to be highlighted at this point since it is a theme to which we shall return later in this paper.

While Wellington chose to pinpoint the work of Kant it is possible to trace the attempts to classify knowledge to much earlier roots. Such an attempt, which has been largely neglected by curriculum scholars, is to be found hidden away in an appendix to the Spens Report (Consultative Committee of the Board of Education 1938, pp. 403-414) in which there is a detailed historical discussion of the conception of general liberal education which includes an interesting historical review of the 'seven liberal arts or branches of knowledge, which so profoundly influenced education in Western Europe and in England during the Middle Ages and down to the eighteenth century' (p.404). It is worth reminding ourselves what these seven liberal arts were: grammar, music, geometry, arithmetic, astronomy, rhetoric, and dialectic. The author of this appendix traces the changing conception of the seven liberal arts from the Greeks through to Matthew Arnold's report on secondary education in France, Germany, and Italy which was incorporated in the Taunton Report (Royal Commission 1868). In the appendix of the Spens Report we find the following quotation from Arnold's report, 'The mother tongue, the elements of Latin and of the chief modern languages, the elements of history, of arithmetic and geometry, of geography, and of the knowledge of nature, should be the same for all boys at this stage' (p.411). In this appendix we can read how a philosophical category system, the seven liberal arts, is seen as the basis for a pragmatic subject based curriculum - the proposal by Arnold. We can witness a similar transformation when we consider the works of philosophers such as Hirst and their influence on curriculum policy makers in England and Wales.

Interestingly, just as the Greeks formulated the seven liberal arts, the pillars of wisdom, so did Hirst (1965) propose seven distinct disciplines or forms of knowledge: mathematics, physical sciences, human sciences, history, religion, literature and the fine arts, and philosophy. He argues, 'It is the distinct disciplines that basically constitute the range of unique ways we

have of understanding experience if to these is added the category of moral knowledge' (p.131). Hirst (1974) employed his analysis of forms of knowledge in an interesting critique of curriculum integration where he argues

> ... all knowledge involves the use of conceptual schemes and related judgements of truth, and for that reason different forms of knowledge can be distinguished according to the character of the conceptual schemes and truth criteria involved. In this sense all our knowledge occurs within some logical structure which is what it is. There simply is no such thing as knowledge which is not locatable within some such organisation, and what that location is, is not a matter of choice or decision (p.135).

It is the force of this argument about discrete logical structures which is challenged by those who seek alternatives to traditional subject based curricula. Wellington (1988) was much influenced by the paper of Körner (1967) when he warned 'beware of any transcendental tendencies in defining and justifying curriculum decisions....because the forms of knowledge are necessarily non-unique, the barriers between them must be subject to change. Thus there can be no logical or conceptual criteria which are fully adequate in dividing our knowledge of the world into separate distinguishable compartments, like the forms of knowledge' (p.13). It was the acknowledgement of the rapidity of change in modern life which Phenx (1964), writing at about the same time as Hirst, pointed to in his search for meaning. As he asserted '... a signal contribution can be made to fulfillment of meaning if curricular content can be selected so as to have a measure of permanence amid pervasive changefulness' (p.10).

Phenix enunciated four principles for the selection and organisation of curriculum content. First, curriculum content should be drawn entirely from the fields of disciplined inquiry. Secondly, materials should be chosen which are particularly representative of the field. Thirdly, content should exemplify the methods of inquiry. Fourth, materials should be chosen to arouse imagination. Hirst (1974) has criticised Phenix's analysis, and his six-fold classification of realms of meaning (symbolics, empirics, esthetics, synnoetics, ethics and synoptics) because of his failure to distinguish sufficiently carefully between 'knowledge-how' and 'knowledge-that.' This failure, Hirst claims, leads to confusion.

Nevertheless, the work of Hirst and Phenix and, to a lesser extent, the work of King and Brownell (1966) were particularly influential in the debate about the design of school curricula in England and Wales in the 1960s and 1970s and, as we shall see, the influence can still be detected in the non-statutory guidance published in support of the national curriculum.

Some Sociological Considerations

A seminal work in the contribution of sociologists to curriculum theory was produced by Williams (1961). In The Long Revolution he wrote,

> the content of education, which is subject to great historical variation, again expresses, again both consciously and unconsciously, certain basic elements in the culture, what is thought of as 'an education' being in fact a particular selection, a particular set of emphases and omissions (p.125)

It was this focus on curriculum as a selection from the culture which sparked off a number of reflective and insightful publications (e.g. Musgrove 1968, Musgrave 1973, Young 1971 and Bernstein 1977). Of these, Young's book Knowledge and Control was particularly influential, though as Whitty (1985) records, it became 'the centre of a considerable amount of political and academic controversy' (p.13). Central to Young's argument was the statement that 'we have virtually no theoretical perspectives or research to suggest explanations of how curricula, which are no less social inventions than political parties or new towns, arise, persist and change, and what the interests and values involved might be.'

Lawton (1975) reviewed Young's book emphasising that it set the sociology of education in a new direction, a direction which, he argued, was 'clearly connected with a new trend in general sociology - the view that 'common-sense' or 'taken for granted' views have to be questioned; the view that sociology itself rests on certain kinds of ideological pre-suppositions, and if we are to understand the social world we must get beyond these pre-suppositions, however well-established and institutionalised they may be' (p.57).

Lawton explored the work of Young before engaging in a review of the work of Hirst and Phenix, discussed above, and concluding,

> I want to argue that when we talk about a common culture, the central area for concern is connected with the forms of knowledge or realms of meaning or disciplines. This is the major part of our common culture. Sub-cultural or regional differences are very important and should not be neglected, but as far as schools are concerned the first task is to work out a means of transmitting the public forms of knowledge which comprise our national, and to some extent, our international culture (p.81).

Lawton proposed a common culture curriculum, a curriculum based on disciplines which did not rule out inter-disciplinary work. His proposed common core curriculum, comprising six essential ingredients (mathematics, the physical and biological sciences, humanities and social sciences, the expressive and creative arts, moral education, and inter-disciplinary work), was founded on two important aspects of curriculum planning: coverage and balance.

We must recognise that Lawton's work has not escaped critical commentary. Indeed, Whitty (1985) devotes a whole chapter to a detailed critique of it in which he points to Lawton's crude conception of class and culture and his failure to address the relationships between culture and the social and economic environment. Whitty argues for a much closer alliance between sociologists of education and curriculum theorists. Despite these criticisms, we would suggest that Lawton's work should not be neglected since it provides a helpful balance to the works of philosophers and has provided some of the foundations on which to build an analysis of the new national curriculum. Before leaving this discussion we need to be aware that, whereas sociologists such as Bourdieu (1973), Bernstein (1975) and Apple (1979) were arguing that 'School knowledge that is presented as asocial and politically neutral is shown to be class-specific knowledge that operates to legitimate differential reproductive sorting as meritocratic achievement' (Wexler 1990), later writers were to disclaim this as being mechanical or simple-minded. Wexler highlights processes of resistance, contradiction and contestation, asserting 'the study of school knowledge is an analysis of class consciousness and class formation' (p.111). It is not my intention to pursue this discussion further. It is sufficient to emphasise how the sociological focus on curriculum has changed rapidly in a short period, a period which coincided in England and Wales with an intensive public scrutiny of the curriculum which has been labelled the 'Great Debate.'

The Great Debate and the Education Reform Act

The brief remarks which follow about the Great Debate are intended to do no more than set the scene for the Education Reform Act. The debate can be traced in a series of publications produced by the Department of Education and Science and Her Majesty's Inspectorate (Department of Education and Science 1977a, 1977b, 1980, 1981a, 1981b, 1983 and 1987). Useful commentaries have been provided by Chitty (1988) and Moon, Murphy and Raynor (1989).

The Great Debate was triggered by the then Prime Minister James Callaghan when he delivered a speech at Ruskin College, Oxford in October 1976. In this speech he called for attention to be paid to defining a core curriculum and a common curriculum. This was an issue which had been highlighted as early as 1969 in the Scarborough Conference which led to the publication by the Schools Council (now defunct) of a working paper focusing on the curriculum for the young school leaver (Schools Council 1971) and later (Schools Council 1975) to a working paper which addressed the whole curriculum for pupils aged 13 to 16 years. While there is scope for an extended discussion of when it was precisely that the wheels began to turn, which eventually led to the promulgation of a national curriculum, our concern in this paper is to highlight the continuity between the analysis offered by philosophers and sociologists and the governmental agencies who laid out the agendas for public discussion.

In this context we would point to one of the earliest documents in the debate which was written by members of Her Majesty's Inspectorate (1977):

> It is not particularly difficult to advocate and indeed to implement, given the appropriate resources, the notion of English, Mathematics and Science as a compulsory core for all pupils to 16. This however merely begins an education discussion and does not provide a programme. What English? What Mathematics? What Science?... We see the curriculum to be concerned with introducing pupils during the period of compulsory schooling to certain essential "areas of experience":
>
> The aesthetic and creative.
> The ethical.
> The linguistic.
> The mathematical.
> The physical.
> The scientific.
> The social and political.
> The spiritual.

Notice the category system employed in this quotation. First, it does not refer to conventional school subjects. Secondly, it avoids the use of terms such as forms of knowledge or realms of meaning or disciplines but uses the term 'areas of experience' instead. HMI were to employ this category system as a basis for curriculum review and curriculum construction in a small number of comprehensive schools in six English local education authorities. They were to conclude this review in a publication (Department of Education and Science 1983) which focused on the entitlement curriculum.

By 1980 the Department of Education and Science was able to report a consensus on curriculum aims. They produced (DES 1980) a list of six aims which matched those produced by Her Majesty's Inspectorate in 1977. They also reported in 1980

> In the course of the public and professional debate about the school curriculum a good deal of support has been found for the idea of identifying a 'core' or essential part of the curriculum which should be followed by all pupils according to their ability. Such a core, it is hoped, would ensure that all pupils, whatever else they do, at least get a sufficient grounding in the knowledge and skills which by common consent should form part of the equipment of the educated adult (p.5).

Here is the assertion of the common core curriculum, a curriculum which would be perceived as a consensus curriculum. In the 1980 document attention is paid to the subject components of the core: English, mathematics, science, modern languages, religious education and physical education.

By 1987, the debate had moved on and the government was ready to produce a consultation paper which heralded the subject based curriculum which was to be embodied in the Education Reform Act in the following year.

The Education Reform Act lists ten subjects (English, mathematics, science, history, geography, technology, music, art, physical education and modern languages) which constitute the compulsory subjects in England and, with the addition of Welsh, eleven subjects in Wales. The Act goes much further than simply identifying subjects. In Section 4(2) we read,

> The Secretary of State may by order specify in relation to each of the foundation subjects:
>
> (a) such attainment targets;
> (b) such programmes of study; and
> (c) such assessment arrangements as he considers appropriate for the subject.

Four key stages of schooling were specified in the Act and these were related to levels of attainment in the subjects which were considered appropriate for pupils aged 7+, 11+, 14+ and 16+. The national curriculum was tightly regulated in terms of its content and assessment.

To implement the Act, three new councils were created: the National Curriculum Council, the Curriculum Council for Wales, and the School Examination and Assessment Council. The functions of these councils are listed in the Act. It should be noted, in passing, that the Act goes well beyond curriculum issues and includes the establishment of new types of secondary schools, provides for new governing bodies for schools, and sets the limits for local education authority involvement.

Cross-Curricularity.

We have already noted that in 1977 Her Majesty's Inspectorate had set in train a process of curriculum appraisal which was based on a list of areas of experience. The following quotations from Her Majesty's Inspectorate publications illustrate the continuity in their arguments concerning the need to think about the curriculum of secondary schools in broader terms than the conventional subject compartments.

In a report of a survey of secondary schools in England (Department of Education 1979) they write,

> Further attempts are needed to develop each school's curricular philosophy so that the skills, ideas, knowledge and attitudes developed in individual subject areas might be better coordinated. This coordination would help not only with the development of basic skills and skills associated with certain subjects but also with important across-the-board aspects of education such as language development, health education, moral education and careers education, as well as the capacity for independent learning (p.239)

The same emphasis recurs in a discussion paper produced by Her Majesty's Inspectorate in 1985,

> There are some essential issues which are not necessarily contained within subjects but which need to be included in the curriculum. While they may sometimes be taught separately they are more frequently and often more appropriately mediated through topics, subjects, groups of subjects or the general life of the school... Whatever the arrangements for cross-curricular issues, they should not be left to chance or to individual initiatives; their place needs

> to be assured through consultation, be consistent with the general framework adopted by the school, and be recorded in schemes of work which indicate the progression to be expected (p.13).

They refer specifically to the following cross-curricular issues: environmental education, health education, information technology, political education, education in economic understanding, preparation for the world of work, careers education, equal opportunities for boys and girls, and provision for ethnic minority groups.

While cross-curricularity was not referred to specifically in the Education Reform Act, and therefore providing for its inclusion in the curriculum is not mandatory, it figures prominently in two aspects of curriculum implementation. First, the working groups which the government established for each of the mandatory foundation subjects were required to take cross-curricularity into account in their definitions of profile components, programmes of study and attainment targets. Secondly, the National Curriculum Council and the Curriculum Council for Wales highlighted cross-curricularity in their non-statutory guidance. Thus, the National Curriculum Council (1990) asserted that the national curriculum will not provide the necessary breadth and that while the ten subjects provided a foundation they needed to be augmented by religious education, additional subjects, an 'accepted range of cross-curricular elements' (p.1) and extra-curricular activities. They went on to distinguish between cross-curricular dimensions, cross-curricular skills and cross-curricular themes. The same emphasis was given by the Curriculum Council for Wales (1991) in its publication about the whole curriculum though they prefaced their remarks about cross-curricularity by arguing for a broad and balanced curriculum provision which should take into account 'eight aspects of learning which together describe the full range of experiences to which pupils are entitled' (p.7). The eight aspects of learning were listed as: expressive and aesthetic; linguistic and literary; mathematical; physical and recreational; scientific; social and environmental; spiritual and moral; and technological. The category system promulgated by Her Majesty's Inspectorate, which referred to areas of experience, has not been lost though the categories in the list have been modified. The Curriculum Council for Wales goes on to assert:

> Looking at the curriculum in these terms, rather than simply from a "subject" perspective, will emphasise the essential wholeness of the curriculum and the ways in which its different elements interact. The fact that "subjects" do not equate with aspects of learning cannot be over-emphasised, and schools will need to develop this holistic approach to curriculum planning as a pre-requisite for effective and rich provision (p.7).
>
> The emphasis in this paragraph was there in the original.

Both of the curriculum councils were agreed on five cross-curricular themes:

- careers education and guidance;
- education for citizenship (community understanding in Wales);
- economic and industrial understanding;
- health education;
- environmental education.

Under cross-curricular skills they included:

- communication;
- numeracy;
- study;
- problem solving;
- personal and social;
- information technology.

Under cross-curricular dimensions were included:

- equal opportunities;
- multicultural education;
- the European dimension; and
- in Wales, the Welsh dimension.

For virtually all of these cross-curricular issues the National Curriculum Council and the Curriculum Council of Wales have produced a stream of publications (e.g. Curriculum Council for Wales 1990 and National Curriculum Council 1990b) to help schools as they seek to plan their curricula. Schools are attempting to domesticate the central initiatives and legal requirements to meet their particular local circumstances. It is in this domesticated cross-curricularity that schools are seeking to incorporate mandatory, centrally regulated subjects into their own curricula and they are encouraged to take into account aspects of learning and areas of experience which are defined by a theoretical framework for the organisation of knowledge. As we have asserted elsewhere, 'Cross-curricularity is the cement that binds the building bricks: the dimensions, skills and themes surround,

penetrate and bind the subjects into a coherent, balanced and broad whole' (Williams 1992, p. 104).

The task of developing a whole curriculum along the lines advocated by the curriculum councils should not be under-estimated. Schools are not only experiencing pressures to design curricula they must also accommodate other governmental initiatives including local management including delegated budgets, establishing new arrangements for school governing bodies, introducing staff appraisal schemes, introducing new modes of assessment while at the same time facing difficulties associated with demographic change and economic recession. Senior managers in schools are increasingly over-stretched and the lack of administrative and advisory support is worsened as local education authorities, the administrative agencies responsible for school managerial and curriculum support, are cut back. In a curriculum context schools are being required, on the one hand, to engage in a major curriculum reappraisal and, on the other hand, to establish new management arrangements. It would be foolish to argue that at this time, four years after the passing of the Education Reform Act, schools are generally succeeding in meeting the various challenges with which they are faced. Projects, such as the Welsh office funded project Economic Awareness as a Curriculum Entitlement in Wales, have been set up to provide in-service training support, access to research findings and research support.

For each foundation subject the government established a working group to define attainment targets and programmes of study at each of the four key stages. They produced consultation documents and final reports which have all led to intense public and professional debate. The work of the group has been staged over the last four years with priority attention being given to the core subjects, English, mathematics, and science. This incremental approach has reinforced the perception that the curriculum is a compartmentalised set of autonomous subjects. It has also made whole curriculum planning in schools particularly difficult. How can teachers consider how best to incorporate cross-curricular issues when they are unsure about the nature of their subject specialisms?

In publications from the curriculum councils teachers are encouraged to consider three models of development for incorporating cross-curricularity: suspending the school timetable to allow a block of time for cross-curricular

activities; including cross-curricularity in such courses as personal and social education; and encouraging all subject specialists to include cross-curricular issues in their courses. These proposals have largely generated what some would call a technicist approach. Schools have attempted to audit their current provision, sought to define strengths and weaknesses, and then attempted, often subject by subject, to remedy the weaknesses. Critics of this technical response point to the piecemeal nature of the exercise. They argue that much of the activity is superficial and even cosmetic. What is lacking, they argue, is an overall curriculum philosophy which serves to unify their curriculum effort.

The current curriculum picture in England and Wales is inevitably clouded. The legal national curriculum is being introduced incrementally and some subjects at some key stages are now in place. It would be over-simplistic to see 1988 as representing a complete break in the curriculum traditions of England and Wales. The lively debate which characterised the curriculum scene in the 1970s and 1980s continues in the 1990s. The need for theorists to continue to explore the whole curriculum has not been lost though schools are characterized more by curriculum fragmentation rather than curriculum coherence.

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A SOCIO-POLITICAL ANALYSIS OF NATIONALIZED CURRICULUM
A Response to Michael Williams' Paper

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The idea of a nationalized curriculum has spurred many debates in the United States. It has been studied at the local, state, and national levels. Those who support it do so with the goal that it can help to organize an often fragmented curriculum. They hope that the new curriculum can lead to a better educational experience for all students and better prepare the students for productive labor in the work force. Those who oppose a nationalized curriculum fear giving control of school knowledge to a government which may not recognize the specialized needs and interests of students across the country. They also fear teachers losing control of curriculum and becoming managers of students' learning, not professionals doing the job for which they were trained. Since the movement toward a nationalized curriculum is politically viable in the United States (though some would argue that the textbook curriculum which exists in many districts makes a pseudo-national curriculum), it is important for Americans to study examples of a nationalized curriculum in other countries.

Michael Williams' paper, "Cross-Curricularity and the Whole Curriculum: Bridging the Gap Between Curriculum Theory and Curriculum Policy Making" can be a helpful paper for tracing ideological suppositions of curriculum development and the movement toward a nationalized curriculum in Great Britain. The philosophical considerations he raises as to what knowledge should be presented and in what subjects are important issues to debate. Herb Kliebard described the struggle for the power to define school curriculum sixty to seventy years ago in the United States as a struggle among traditionalists, those who assumed schools should prepare students for the labor force, developmentalists, and those interested in social reform. The debates then are similar to many of the current arguments occurring over what knowledge should be emphasized in schools. One of the more interesting definitions of school knowledge in my opinion was the six basic skills that Herb Kohl described. His six skills include: the ability to use language well and thoughtfully, the ability to think through a problem and experiment with

solutions, the ability to understand scientific and technological ideas and to use tools, the ability to use the imagination and participate in and appreciate different forms of personal and group expression, the ability to understand how people function in groups, and the ability to know how to learn something yourself and to have the skills and confidence to be a learner all your life (Kohl, 1982). Some of the most interesting calls for knowledge division in schools have come from various teachers' groups seeking to define curriculum which can improve schooling for all students. Here I would recommend reading works of groups such as Rethinking Schools in Milwaukee, The Boston Women's Teachers' Group, The Public Education Information Network out of St. Louis, The National Coalition of Educational Activists, The Institute for Democracy in Education, and The Our Schools Our Selves group out of Toronto.

The second section of Williams' paper discusses sociological considerations of curriculum theory. Williams' quotes Lawton's review of Michael F.D. Young's book, Knowledge and Control: New Directions for the Sociology of Education, a landmark book in the movement known as the Sociology of School Knowledge. Lawton calls for a curriculum based on a common culture, though Young questions the very nature of what is common-sense knowledge. This is an important point and one that needs additional discussion. Young and other educational theorists arguing from the perspective of critical theory argue that these are not issues to be easily dismissed. For whenever any curriculum, much more a nationalized curriculum, seeks to teach any "common culture" then those developing the curriculum must question what is common culture. In this country the drive toward a common core curriculum, the melting pot of America, traditionally has been riddled with racist, classist, sexist, ageist, and Euro-centric ideologies. It is the curriculum which taught that Columbus discovered America rather than practicing genocide on the Arawak population. It is the curriculum which shows how the European settlers Christianized the native peoples rather than robbing them of their culture while giving them such presents as small-pox-infested blankets. It is the curriculum which says that women's contribution to history includes sewing flags and being nurses during wars rather than struggling for the settlement of the west, for freedom, and for the vote. It is the curriculum which says that Rosa Parks, tired after a long day at work, refused to give up her seat

on a bus rather than being a dedicated worker for the NAACP and a woman trained in civil disobedience who struggled years for her constitutional rights.

I find the term 'common culture' frightening because of the knowledge that has been part of a common culture in the past. The notions of coverage and balance that Lawton proposes in the 'common culture curriculum' in this country take the forms of February being black history month and women's studies month. The one time silenced aspects of the curriculum enter the curriculum but only through the backdoor. They stay as secondary elements, there through the struggle of many groups for representation in the 'common culture curriculum,' but there only as additions rather than integral elements in the curriculum.

If we truly want to work toward a multi-cultural curriculum in this country we cannot do it by adding units now and then to the curriculum while maintaining the 'common culture curriculum.' We must teach an anti-racist, anti-classist, anti-sexist curriculum to make up for years of little to no curriculum inclusion, stereotypical representations in the curriculum and mass media, and the structures of society at all levels which work to keep women, minorities, and the poor as second class citizens. Rather than "disclaiming" the sociologists who argue about the hegemonic and reproductive tendencies of school knowledge, we must actively debate how to democratize the curriculum to make it a curriculum that can truly represent all peoples in our nation, not just those with the cultural capital of the white middle class.

We can argue that schools serve two divergent purposes. One purpose is as an agent in the reproduction of society, which the traditional curriculum served so well, and another is as an agent of democracy where all students have equal learning opportunities (Apple and Weis, 1983). TJ Jackson Lears (1985) argues that the ideological environment, that which the intellectuals develop, serves to "mark the boundaries of permissible discourse." With this idea opens the door of opportunity for a progressive school curriculum. Rather than recognizing and emphasizing the reproductive tendencies of schools where students learn to fit into their social class and gender roles as argued by Apple (1979), Bastian et.al. (1985), Bernstein (1975), Bourdieu (1977), Freire (1983), and Willis (1977), it can be a democratic process where students can learn and achieve based on their abilities. This second role of

schooling will remain a myth if the school curriculum remains behind the shield of a 'common culture curriculum' and continues to teach a biased curriculum. We must do as Jackson Lears describes and mark the boundaries of permissible discourse to be more inclusive of all people. This will be a first and necessary step in the democratization of schools and in making the schools agents of production rather than reproduction into specified social and gender roles.

Personally, I question whether any nationalized curriculum can build beyond its traditional prejudices and limitations enough to meet the needs and interests of all students and teachers. Why I feel this way leads me into a discussion of the cross-curricularity goals discussed in Williams' paper. From reading his paper it sounds as though there have been some noble attempts to make the curriculum more inclusive and, as described, more 'holistic.' The cross-curricular themes, skills, and dimensions are an attempt to build breadth and a full range of experience in the curriculum for students in Great Britain including issues such as "equal opportunities for boys and girls, and provision for ethnic minority groups" (Williams, 1992). The very fact that it is not part of the Education Reform Act and, therefore, not mandatory, even though it is built into several levels of curriculum planning, is disturbing. When the issues of equal opportunities for boys and girls and the provision for ethnic minority groups is secondary to other parts of the curriculum it will stay of secondary importance and this will impede any movement at building a truly inclusive curriculum.

I feel that the cross-curricular goals and the nationalized curriculum have a weakness in design for other reasons. One weakness results directly from the fact that this is a nationalized curriculum. The power of knowledge selection and presentation is taken out of the hands of teachers and given to outsiders. Teachers are no longer curriculum planners. This top-down model of curriculum development and implementation puts teachers in the role of managers of the learning process. Their work has been proletarianized, their actions divided into simplistic steps defined by the curriculum, a process very similar to that of workers on an assembly line. The professional responsibility that makes the teaching profession unique is challenged and discredited. Not only will this make it extremely difficult for teachers to

make the curriculum personalized for their own students' needs and interests, but this can lead to difficulty when implementing the curriculum.

This expresses a lack of understanding of the complexity of teaching while ignoring the political economy of emotional labor, which has historically occurred in gender-specific jobs. To understand this process we must "deconstruct" the work and agendas of those with power who work to define curriculum, not only to understand the process but to work toward emancipation. Here the work of feminist and poststructuralist theorists such as Patti Lather (1991) has gone much beyond the work of most educational theorists to give meaning to the limitations on teachers' labor.

As Williams' mentioned in his article, there are three recommendations for incorporating cross-curricularity into daily planning. They are: "suspending the school timetable to allow a block of time for cross-curricular activities; including cross-curricularity in such courses as personal and social education; and encouraging all subject specialists to include cross-curricular issues in their courses" (Williams, 1992: 17). These may be the goals, but when teachers only implement the curriculum they find it much more difficult to build change into the curriculum. When the curriculum is handed down to them the teachers are often leery to make changes that might make it difficult for them to finish all the stated curriculum, no matter how important the additions may be. The curriculum has enough in it to accomplish, especially when preparing for the testing program, to be able to fit in other goals not already built into the curriculum. Research has shown teachers to have many defense mechanisms when pressured to make it through curriculum programs. These do not lend themselves to curriculum coverage and student involvement in learning. Curriculum coverage may come at the expense of teacher and student involvement (McNeil, 1986; Shanks, 1990). Not only are teachers limited in their curriculum, but they sacrifice their pedagogical styles in the name of curriculum coverage. This gives added importance to the idea that unless teachers' responsibilities for curriculum planning and management are taken seriously, the goals of cross-curricularity could be very difficult to obtain.

We must learn from the experiences of Great Britain and our own examples of standardized curriculums to consider the political, aesthetic, and ethical values, as well as the technical and scientific importance of curriculum

(Huebner, 1966). We must question what curriculum will be of the most value to teachers and students and what curriculum can best support the movement toward a democratic curriculum and pedagogy.

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PUPILS' PERCEPTIONS OF SCIENCE IN THEIR FINAL YEAR IN PRIMARY SCHOOL

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The number (or lack) of students enrolling for science courses at secondary schools and colleges of higher or further education in England and Wales has long been a cause for comment. Concern for the downward trend has surfaced again recently in response to the reduced number of science entries at the General Certificate of Education Advanced Level. A report on the latest Advanced Level results (The Times Educational Supplement, 1992) notes that 'this is the 11th year in a row that science entries have fallen.' Concern has also been voiced by the President of the British Association for the Advancement of Science, Sir David Attenborough. Speaking at the Association's recent (1992) annual conference he warned 'Britain's future depends on its ability to interest young people in becoming scientists.'

Many reasons have been offered for the comparatively low uptake of science at secondary level and beyond. These include the poor prospects and earning power of scientists, the reputed difficulty of science subjects, the comparatively low public regard for science and scientists, and the unattractiveness of science for girls.

It has been suggested that the third and fourth of these issues should begin to be addressed in the primary stage of schooling, in an attempt to nurture a more positive outlook on science and scientists. For example, a number of researchers have identified the differences between girls' and boys' scientific interests at age 11 (Smail & Kelly, 1984; Murphy, 1986; Johnson, 1987; Morgan, 1989) and, although acknowledging that such differences may largely be due to societal factors, nevertheless claim that primary teachers have an important role in applying intervention strategies from the earliest stages of education.

However, despite the potential positive outcomes emanating from a primary science programme in terms of improved attitudes, increased interest and confidence in science, a note of caution is sounded by Craig and Ayres (1988). They warn that appropriate teaching style and presentation of science in the primary school, for pupils aged 5 to 11 years, are as important as the

inclusion of science itself. In other words, it is not enough merely to include science in the primary curriculum, it needs also to be taught in an effective way in order to benefit later uptake.

Clearly, primary teachers have an important role in making science accessible to all pupils but we must remember that other adults are also in positions of influence in the child's education. Parents, of course, have a substantial influence on children's attitudes. Studies by Kremer and Walberg (1981) and Talton and Simpson (1986) point to the way in which parental expectation and commitment to science influence pupils' attitudes and interests in the field.

It may be that many of the inadequacies identified currently in science education (i.e. inferior enrollment, low participation of girls, poor public image of science) will, in time, be ameliorated as a result of Government initiatives such as the compulsory introduction of science as a core component of the curriculum in primary schools. Whether the effects of such policy answer the scientific needs of the country in the long term remains to be seen.

Science and the National Curriculum

Although the National Curriculum per se is a relatively recent introduction to schools in England and Wales, its beginnings can be traced to the mid-1970s. During this period, Britain's relative economic decline came under increasing scrutiny and, as a consequence, the education system was singled out as a possible important contributory factor and one on which attention was subsequently focused by the government of the day. James Callaghan, Prime Minister at the time, questioned the shortage of science and engineering graduates, the low status of industry in young people's choice of careers, the reason for girls' early abandonment of science and the shortage of mathematics and science teachers - issues which appear to have remained unresolved. Callaghan's speech of 1976 led to the Great Debate in education and the subsequent, albeit slow-moving, developments towards the emergence of the present-day National Curriculum.

In 1988 the British Government specified new legal requirements for the curriculum of pupils of compulsory school age educated in maintained schools

in England and Wales. These requirements, contained in the Education Reform Act (ERA), comprise the elements of

* Religious Education and
* the National Curriculum.

The National Curriculum is made up of foundation subjects of which three - English, mathematics and science - are classed as core subjects. In some schools in Wales, Welsh is also a core subject. The remaining foundation subjects are, for the primary age range (5-11 years);

Technology (including Design)
History
Geography
Music
Art and
Physical Education and
Welsh (in schools in Wales where it is not a core subject).

Although the curriculum is described in terms of distinct subjects, the ERA does not specify that teaching should be carried out in discrete areas of study - for example, subjects may be taught by means of an integrated approach. The organisation and methods of teaching are left to individual schools, although recent reports (Alexander, 1991; Alexander et al., 1992; Her Majesty's Inspectorate (HMI), 1992) have brought this aspect of teaching into the forefront of the current debate on education in the primary school.

In addition to religious education and foundation subjects which are the statutory requirements of the curriculum, other areas such as cross-curricular themes (e.g. economic and industrial education, environmental education) and cross-curricular dimensions (e.g. equal opportunities, multicultural education), although not statutory, are considered essential components of a complete curriculum. Such cross-curricular aspects are expected to be accommodated into the overall programme for pupils.

The above is a brief outline of the primary school curriculum. It is imperative to highlight that, within this primary programme, science is to achieve a much higher profile than has been the case in the past. Without embarking on an historical analysis of the development of primary science in England and Wales, it is perhaps apt to remind ourselves of the relatively impoverished picture of 14 years ago. HMI commented in 1978 (Department of Education and Science, 1978),

> Although some science was attempted in a majority of classes, the work was developed seriously in only just over one class in ten.

Various reports by HMI during the 1980s (HMI, 1986; HMI (Wales), 1988) indicated that science in the primary school received greater prominence as the decade progressed but evidently there was still much to be done,

> Science plays a part, albeit on occasions a very small part, in the education of most primary pupils.
>
> (HMI, 1986 p.20)

> Provision for science in primary schools in Wales is at present variable. The subject is, increasingly, included in the curriculum but it is still relatively uncommon to encounter schools where it occupies a consistent proportion of time.
>
> (HMI (Wales), 1988 p.18)

As recently as 1989 it was evident that science was not high on the agenda of most primary schools' curricula. HMI, in a survey monitoring progress of primary schools preparing for and implementing the National Curriculum commented,

> Nearly all the schools devoted a majority of their teaching time to the core subjects, and in this respect were meeting the requirements of the National Curriculum. However, over two-thirds of the schools needed to give more attention to science.
>
> (HMI, 1989 p.4)

Against this backdrop, therefore, the introduction in 1989 of science as a compulsory and core component of the curriculum can be viewed as a radical move. The fact that science has been included as a core subject, giving it a status equal to that of English and mathematics, has understandably caused a flurry of activity on the part of primary practitioners and support services in an attempt to encompass the many and varied demands of this, now statutory, subject.

The Project

Science education in England and Wales continues to be in a process of change as schools and teachers strive to interpret and implement the requirements specified in the National Curriculum documentation for science (DES, 1991).

Within this climate of adjustment prevalent in primary schools, it was felt to be an appropriate time to begin a longitudinal study of pupils' views of science in order to monitor the influence of the introduction of a National Curriculum on perceptions of science.

As can be seen from the Appendix, science is not yet a compulsory component for all age groups in the primary schools of England and Wales. However, most schools are likely to include some science, even in classes where it is not yet a statutory requirement, not least in order to familiarise teachers with content and organisation of science activities. Although unlikely, it may be the case that some 11 year olds will have left primary schools in the summers of 1991, 1992, and 1993 having experienced very little science teaching. However, those leaving in 1994 will have completed a four-year science programme in the junior school. Pupils leaving from 1995 onwards will have experienced two years of science in the infants (5-7 years) classes as a precursor to the four-year junior course. Hence, those pupils leaving the primary school in 1995 will be the first cohort to have completed infant and junior programmes of National Curriculum science.

With increasing exposure to science over the next few years it is possible that pupils' perceptions will change as they become more familiar with, for example, using the skills of science, learning of the relevance of science to everyday life, and understanding the historical significance of scientific discovery. It is the intention to monitor changes in the way pupils perceive science through periodic interviews at the end of the junior stage of schooling. The place of science as a core subject is unequivocal in the minds of those who have planned the National Curriculum but whether indeed pupils, parents, and public acknowledge its parity with other core subjects is open to question. It is the intention, therefore, to monitor the views of pupils over the next few years in order to ascertain pupils' perceptions of science in relation to English and mathematics.

The initial project was carried out in July 1991 while the pupils were in their final few weeks in the junior school. Although science had not been a compulsory component for these 11-year olds, all schools involved in the survey had, in fact, begun to introduce science throughout the school in response to the requirements of the National Curriculum. (The timetable for

the introduction of the Science National Curriculum to the various age groups in the primary sector is shown in the Appendix).

The study aimed to identify how science compares with other subjects in terms of pupils' likes and dislikes of different school subjects in the primary school. Further, the pupils were asked to predict their preferences in terms of subjects soon to be met in the secondary school.

A further aim of the survey was to determine pupils' perceptions of the relative importance parents attached to science. The three Rs, interpreted as English (reading and writing) and mathematics have traditionally been the main and most important components of the primary curriculum. The skills of literacy and numeracy have long been considered 'the basics' of education and one wonders if science and its associated skills will ever become a fully accepted core area or will it be viewed as an intruder, not to be taken as seriously as English and mathematics.

Parents, of course, are only one group whose influence on children's attitudes needs to be considered. Clearly, teachers have a highly instrumental role in demonstrating priorities in the classroom and hence influencing pupils' perceptions of the importance of science. However, teachers' views of science in the curriculum were not sought in this study which aimed to focus specifically on pupils' attitudes.

Interviews with the sample of pupils also explored their views on the importance of scientists' work, careers involving science, and the likelihood of using science in their future employment although these aspects are not reported in this paper.

Methodology

The sample consisted of 120 pupils (60 girls and 60 boys) in their final few weeks in the primary sector. Twelve schools, six from each of two adjoining local education authorities (LEAs) were selected through the author's acquaintance with the schools and headteachers, in order to include a variety of schools in terms of pupil numbers and type of catchment area. It was not practical to select very small rural schools (of which there are many in the selected LEAs) due to the need to interview a minimum of 10 pupils in their final term at the school. The schools ranged in size (92 - 355 pupils on

roll) and location (rural, semi-rural, and urban). Two of the sample were designated Welsh schools where Welsh is the main medium of instruction.

The eldest 5 girls and 5 boys in each of the 12 schools were interviewed individually in a spare classroom or empty staffroom. A questionnaire to be completed by the pupils had been used in the pilot study but this indicated that children needed further clarification of some terms. Hence, it was considered more appropriate to interview the pupils, using the original planned questions but giving further clarification to those questions which pupils had originally found confusing.

In the Welsh medium schools the interview was carried out in exactly the same way but using the Welsh language.

Individual interviews lasted approximately 20 minutes and all were carried out by the same interviewer.

Findings

A. Subject preferences of pupils in primary school.

From a list of subjects representing the foundation subjects of the National Curriculum pupils were invited to name their favourite subject in their present school. The responses relating to the core subjects, which are the focus of this study, are shown in Table 1.

Although Welsh is designated a core subject of the National Curriculum in some schools in Wales, in other schools in the Principality Welsh is a foundation subject. Some schools in the survey were of the former category and others in the latter. Hence, it was not feasible in this study to compare children's attitudes to Welsh as a subject. For the purposes of this study, therefore, the core subjects are English, mathematics and science.

TABLE 1 Preferred subject of girls and boys

Subject	Girls %	Boys %	Total %
English	20	8	14
Mathematics	18	20	19
Science	2	7	4
Other Foundation subjects (7)	60	65	63
	n=60	n=60	N=120

Science, clearly has a low overall rating as a preferred subject in comparison with English and mathematics. It is interesting to note that the percentage of boys preferring English is similar to that of boys preferring science but, in contrast, a much higher percentage of girls prefers English than prefers science. Mathematics is the most popular of the three subjects, although the results do not match the high percentage indicated in other recent studies (Blatchford, 1992; The Independent, 1992).

Pupils were also asked to identify their second preferred subject as the pilot study indicated that children often found difficulty in choosing one subject only. Pupils' second subject preference is shown in Table 2.

TABLE 2 Second preferred subject of girls and boys

Subject	Girls %	Boys %	Total %
English	17	12	14
Mathematics	13	7	10
Science	3	13	8
Other Foundation subjects (7)	67	68	68

In this case, science features more frequently as a preference of boys, with girls again showing a marked preference for English and a low preference for science.

The combination of first and second preference is shown in Table 3.

TABLE 3 First and second subject preferences of girls and boys.

Subject	Girls %	Boys %	Total %
English	37	20	28
Mathematics	31	27	29
Science	5	20	13
Other Foundation subjects (7)	27	33	30

This table clearly indicates that more girls than boys have a preference for English although there is a closer match in the preference for

mathematics. However, science appears to be very much a boys' preference and, in this case, accounts for a percentage equal to that of boys who prefer English.

Pupils were asked to select their least preferred subject, again from a list of the National Curriculum foundation subjects. Results relating to core subjects are shown in Table 4.

TABLE 4 Least preferred subject of girls and boys

Subject	Girls %	Boys %	Total %
English	0	10	5
Mathematics	28	25	27
Science	7	0	3
Other Foundation Subjects (7)	65	65	65

Although Tables 1, 2, and 3 do not indicate a strong preference for science, Table 4 shows that few pupils, in fact, dislike science. What is also evident in this table is the high percentage who identify mathematics as the least preferred subject, i.e. for a high percentage of pupils (29%) mathematics is one of their preferred subjects (see Table 3) but for 27% of pupils it is the least preferred. It is notable also, that English does not feature as a low preference for girls (0%) and science does not feature as a low preference for boys (0%).

B. Prospective preferences for subjects in secondary school.

The next series of questions in the interview focused on children's perceptions of subjects to be met in the secondary school they would be attending in the near future.

Initially, pupils were asked to select the subject they most looked forward to. Results are shown in the following table.

TABLE 5 Prospective preferences for secondary subjects

Subject	Girls %	Boys %	Total %
English	3	5	4
Mathematics	7	2	4
Science	15	20	18
Other Foundation Subjects (7)	75	73	74

It is interesting to note here that a relatively high percentage of pupils of both sexes anticipate that they will enjoy science more than English and Mathematics at the secondary school. This is particularly intriguing when one compares the responses displayed in Table 3 showing pupils' present preferences. It is also puzzling in view of the response to the next question (see Table 6) in which pupils were asked to identify the subject in which they expected to do well at secondary school. The responses indicate that pupils expect to perform better in mathematics and English although they look forward more to science than these two subjects. Possible explanations for this apparent conflict are offered in the final section.

TABLE 6 Anticipated achievement in secondary subjects

Subject	Girls %	Boys %	Total %
English	27	8	18
Mathematics	20	23	22
Science	5	2	3
Other Foundation subjects (7)	48	67	57

Although only 4% of pupils identify English as a prospective preference, 18% anticipate they will do well in the subject. A similar outcome is illustrated with regard to mathematics. 4% identify mathematics as a preferred subject but 22% predict they will do well. Conversely, 18% identify science as a preferred subject but only 3% predict high achievement.

C. Pupils' perceptions of parental views.

Again focusing on the three core areas of the curriculum, pupils were asked to select:

a) the subject thought by their mother to be the most important for the pupil;

b) the subject thought by their father to be the most important for the pupil.

(Consultation had taken place with the class teacher in order to avoid embarrassing any of the pupils with this question).

Responses are shown in Tables 7 and 8.

Table 7 Perceived maternal importance of subjects

Subject	Girls %	Boys %	Total %
English	62	56	59
Mathematics	32	42	37
Science	6	2	4
	n = 60	n = 57	N = 117

Results indicate that more than half the pupils (59%) perceive mothers to attach greater importance to English (reading and writing) than to mathematics or science. Only a small percentage of pupils (4%) perceive mothers to consider science as the most important core area.

TABLE 8 Perceived paternal importance of subjects

Subject	Girls %	Boys %	Total %
English	48	47	48
Mathematics	50	47	48
Science	2	6	4
	n = 56	n = 49	N = 105

Science, again, appears to be perceived of much less importance than English and mathematics. Such is the case with girls' mothers and fathers and boys' mothers and fathers. Interestingly, mothers are perceived to place more emphasis on succeeding at English than are fathers who are perceived to place importance equally on English and mathematics.

Discussion

The findings indicate that most pupils in the sample, who left primary school in 1991, did not have a preference for science. From a list including all the foundation subjects taught at primary school, 4% named science as their first preference and 8% selected science as a second preference.

The reasons for pupils' choices are not known, but one can offer possible explanations. For example, pupils may have encountered few or no science activities in the primary school and hence been unaware of what the subject entailed. Pupils may, however, have experienced some science but not been involved in a significant amount of practical activity. The paucity of scientific background amongst primary teachers is well documented (e.g. Prawat, 1989; Carre and Carter, 1990; Times Educational Supplement, 1991). It is suggested that lack of confidence in the subject may account for many teachers resorting to the teaching of science in the way in which they themselves were instructed, i.e. transmitting a predetermined body of scientific knowledge (Biddulph et al 1986) in the absence of relevant practical investigations. A report of a recent survey (The Independent, 1992) devised by the Association for Science Education and the British Association for the Advancement of Science claims that, 'children want to be scientists but do not like the way science is taught.' The survey also revealed that only 7% of children in the sample (500 9-13 year-olds) claimed science as their favourite lesson. Hence, one must conclude that the way in which science is taught may be an important factor in determining pupils' enjoyment of the subject.

Another possible factor in influencing pupils' motivation in science is the teacher's own enthusiasm. As suggested above, the advent of the National Curriculum for science has brought to the fore a great deal of anxiety and lack of confidence on the part of primary teachers with regard to their own scientific expertise. In addition, the recent overwhelming demands made of primary teachers in terms of expertise in a number of subjects, curriculum planning, assessment and administrative requirements have done little to create a climate for positive and enthusiastic teaching. However, the point should not be missed that introduction of science into the curriculum is not enough on its own. Pupils need to be effectively involved in practical activities, sometimes pursuing their own lines of investigation in order to

develop a genuine interest in, and enjoyment of, the subject, i.e. the quality of interaction with science is all important (Craig and Ayres, 1988).

One must also acknowledge that parental commitment to subject areas may have considerable influence on pupils' reactions to those subjects. Studies by Talton and Simpson (1986) indicate that science attitudes and interests among adolescents are related to the degree of parental involvement. These researchers stress the need to strengthen public awareness of science. The results shown in Tables 7 and 8 indicate that pupils perceive parental interest in science achievement to be considerably less than in English and mathematics. It may be that parents are ill-informed of the status of science as a core subject or are unaware of the relevance of science in their children's education or simply unconvinced of its importance relative to English and mathematics.

It is tempting to suggest here that not only should general public awareness be raised but also the awareness of some politicians who seem frequently to refer to 'basic skills' as those of literacy and numeracy only. Similarly, researchers whose surveys of primary schools focus on language and mathematics need to be aware of the possible effects of omitting science from their deliberations. Unless those who speak publicly about education acknowledge the existence of science, then one wonders at the reality of science ever being on a par with English and mathematics.

A seemingly contradictory observation from the survey was the comparatively high percentage of pupils for whom science was the subject they looked forward to most in secondary school (18% compared with 4% for English and 4% for Mathematics). This seemed to conflict with the percentage for whom science was a preferred subject in the primary schools (4%). One can only surmise at this apparent contradiction. Depending on their experiences to date, some pupils may see the secondary phase as a genuine opportunity to experience a 'new' subject. For other pupils, it may be that they have not appreciated that activities carried out in primary school are, in fact, science investigations. Pupils may perceive the need for a laboratory in order to do 'real' science and may be excited by the prospect of this novel experience. Blatchford's findings (1992) similarly reveal that children probably look forward to subjects 'covered more specifically at secondary school and not to basic subjects such as mathematics and language.'

At the time of the survey, many of the pupils had been for an introductory visit to the local secondary school, soon to be their new school. Pupils from one school in the sample had, on their visit, been timetabled for science lessons where the teacher had demonstrated the Van de Graff generator. Pupils talked excitedly to the interviewer (post interview) about this experience and, without exception, selected science as the subject they look forward to most!

It is necessary also to comment on gender preferences apparent in the results. Tables 1, 2 and 3 illustrate that more girls in the sample show a preference for English than for mathematics. A very small percentage (5%) indicate science to be a first or second preference. Boys' preferred subject is mathematics with equal numbers of boys preferring English and science (Table 3). More girls than boys prefer English but more boys (20%) than girls (5%) prefer science.

The literature relating to boys' and girls' attitudes to, and interest in, science is extensive but it is not the intention to discuss this aspect of the project in detail here. Suffice it to say that there are evident differences in the preferred subjects of boys and girls. Those researchers who have identified a need to address the poor uptake of science by girls in the secondary school are wise to recognise the existence of differences at an earlier stage.

This paper has focused, to a large extent, on the status of science within the primary school curriculum having taken for granted that its position as a core subject is a worthy one. For primary practitioners the identification of science as a major component of pupils' entitlement is probably not an issue for debate. Nevertheless, it would be foolish to be smug about its presence as a core subject and one needs to be alert to the views of those such as Chapman (1991) who challenges the dominant position that science has been granted in the National Curriculum. After all, the implementation of the National Curriculum rests with the teachers, and first and foremost, the teachers <u>themselves</u> need to be convinced of the place of science.

Acknowledgements are due to the personnel of Dyfed and West Glamorgan Education Authorities (Wales) and the headteachers who kindly allowed me into their schools during a busy phase of preparation for the National Curriculum.

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APPENDIX

Year	Pupil Age	School Year for intro of Science N.C.	SATs unreported	SATs reported
1	5/6	89/90		
2	6/7	90/91	90/91	91/92
3	7/8	90/91		
4	8/9	91/92		
5	9/10	92/93		
6	10/11	93/94	93/94	94/95

Years 1,2 - Key Stage 1 Infant Department

Years 3-6 inc. - Key Stage 2 Junior Department

SATs - Standard Assessment Tasks (at end of Key Stage)

(From DES (1989) National Curriculum: From Policy to Practice)

INSTRUCTION

A SCHOOL-UNIVERSITY COLLABORATION TO IMPLEMENT COOOPERATIVE LEARNING THROUGH INTEGRATED LANGUAGE ARTS

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The theme is the Revolutionary War Era. The teacher in this fifth grade classroom has carefully planned a unit which includes cooperative learning, integrated language arts (reading, writing, speaking, and listening) and social studies. The lesson scenario below comes near the end of the unit and is intended to help students extend their knowledge beyond what is in the social studies textbook.

The teacher, Connie, introduces the lesson to the class. She tells the class that they will be looking at how people lived in America during the Revolutionary War Era. She lists several topics which cooperative groups will explore, such as food, health and recreation, and travel and communication. She then passes out small cards with stickers on them to help the children gather in groups. There are as many cards with the same sticker as there will be children in a group. When the groups are together, they are to find a location, sit down and raise their hands. Since the desks in the room are organized in fours, each group is organized without difficulty. When hands are raised, the children are to be quiet.

Connie next directs the children's attention to the task sheet taped to the front chalkboard (See Figure 1). She discusses with the children the task, the academic skills and social skills which will be needed for successful completion of the task, and the roles to be assumed by members of each group. She assigns roles by height. This class needs structure at this early point in the school year, as students are still struggling to become truly cooperative and self-directed. Connie emphasizes that this is a "together" activity.

Then, each group is given a different colored heart which matches the heart on a packet to be picked up by the go-fer. Group topics are thus assigned. Each packet contains information on the group's topic.

Now the groups begin to work. Each group surveys the contents of its packet and brainstorms ways to share what will be learned with the rest of the class. The students come up with many ideas, such as performing a skit, making

a diorama, craft or food, or writing a song or poem. Each group then begins reading the materials in their packet to gain information about the topic.

Task Sheet

TASK: Learn about the Revolutionary War Era, and plan a way to share the information with the class.

ACADEMIC SKILLS: Reading for the main idea
Summarizing
Organizing ideas

SOCIAL SKILLS: Checking for understanding
Checking for encouragement
Agreement among members of the group

ROLES: Reader—Assigns reading
Writer—Takes notes
Organizer—Puts ideas together and keeps track of them for the presentation
Go-fer—Goes for materials

Figure 1. Cooperative Learning Task Sheet for Revolutionary War Era unit, developed by Connie Albrechtson

The groups work for four days. Presentation day finally arrives, and each group's presentation is enthusiastically received. Evaluation follows each presentation. Individual group members evaluate their group's effectiveness over the course of the project. Connie and the other students evaluate the presentation on established criteria. The teacher adds her own observations of the group's work over the course of the project, considers the students' evaluations, and determines the final group grade.

Two observers are in the classroom today. Pat, a third grade teacher, is Connie's peer coaching partner. Pat and Connie have shared ideas about this lesson during the planning stages, and they will meet again very soon to discuss how the lesson worked. I, too, am in the classroom. I am a university researcher. Connie, a teacher-researcher, has been my partner for nearly two years. My job today is to carefully observe the lesson. I am focusing on three children during this final semester of the study to observe their interactions in groups and their growth as readers and writers.

Lessons such as this are the result of a two-year school-wide staff development project to implement cooperative learning and integrated language arts across the curriculum in an area elementary school. Ethnographic research methods were employed to study changes occurring as a result of the staff development project. The purpose of this paper is to briefly share how the project originated, how it progressed, and, in more depth, how the research study was designed to "fit the project like a glove."

Brief History of the Problem

Connie's lesson reflects a change of paradigms in education. Excellent research exploring how people think and learn, conducted over the past 20-25 years, has led educators to reexamine instructional methods and practices.

During the industrial revolution, some theorists reasoned that methods which worked in industry would work in schools. They reasoned that knowledge was broken down into individual "parts" which children could be taught to "assemble" into wholes (Callahan, 1962). In reading, for example, language was broken into sounds which children learned in isolation from words. They then learned to put sounds together to form words. They learned a limited sight vocabulary of frequently used words and read stories in which vocabulary was controlled. It was hoped that, eventually, children could "put it all together" so they could read and comprehend meaningful text.

Now, research makes it clear that building cars and developing capable language users are not analogous procedures. Lauren Resnick states that, "Just as knowledge is not a collection of separate facts, so learning competence is not a collection of separate skills (Brandt, 1988-89). In education, the focus is changing from product (a car, a reader) to process (what language users do to make sense of language). Instructional practices are changing to reflect this more holistic view of learning (O'Brien, 1989).

On the assembly line, each individual had one job to do. Likewise, in school, children have traditionally worked alone. "Do your own work," "Keep your eyes on your own paper," and "Be quiet" have been common directives in classrooms. Recent research has shown that, contrary to earlier understandings, more learning occurs when children work together frequently in a "framework" which helps them structure their use of time and learn to work with others. Social collaboration is at the heart of learning (Winograd and

Paris, 1988-89). Cooperative learning appears to benefit most children (Johnson, 1984; Slavin, 1989-90).

Parallels are evident between instructional practices in language arts which focus on the processes of making or acquiring meaning and collaborative efforts among children in classrooms where small group work is frequent and guided by cooperative learning principles. "Reading and writing are social events which have as their purposes communication and learning" (Harste, 1989). Frank Smith (1992), a leading researcher and theorist, has pointed out that much of what one knows about such activities as reading, writing and critical thinking is learned, not from direct instruction, but from being in the presence of others engaged in these processes. Children profit from opportunities to share, discuss with, and be around more proficient readers and writers (Graves, 1983). The goal is to enable children to become lifelong learners who can work productively with others toward common ends.

Teachers in the research school, as in many other schools in the region and across the nation, were aware of emerging models for instruction. They wanted to know what new understandings meant for their teaching. Many good teachers are not entirely content with what they have been doing, and they are eager to explore, take risks and continue to grow as professionals. This school-wide project grew out of the efforts initiated by such teachers with the full support of their principal.

The school inservice planning committee initiated the project to integrate cooperative learning with the elementary curriculum, first in the language arts, and later across the curriculum. The teachers were ready to move away from basal readers and explore new models for teaching writing. The school contracted with an outside consultant who provided staff development in cooperative learning. In addition, the school contracted with the author to provide staff development in integrated language arts.

The Staff Development Project

The principal and the consultants agreed that teachers should be supported and should support each other through change. Thus, at the core of the project was a Collaborative Support Team consisting of the principal and "expert" coaches from the school district and the university. The principal served as a "touchstone" for teachers and support team members. She was

involved in planning and decision-making; she allocated financial resources to support the project; and she served as a facilitator for project activities and a liason between teachers and coaches. Everyone involved in the project knew that she would help in any way she could. However, she was very careful to distance herself from a coaching role. A principal, whose role it is to evaluate teachers, cannot also serve as a coach. The principal also absented herself from Collaborative Support Team meetings when coaches discussed the progress of individual teachers.

Teachers in the school were invited to request a coach. Throughout the first year, teachers and their coaches worked together to plan, teach and evaluate lessons and units which employed cooperative learning strategies to teach integrated language arts, including literature-based language instruction and writers' workshop as developed by Graves, Calkins, Atwell and others. A few teachers also began to make connections between integrated language arts and other content areas. The role of the coaches was to share and guide, not to teach and evaluate. Each teacher always decided what role his/her coach would play.

All teachers in the school were invited to attend sharing and support meetings monthly. Some of these meetings were held after school in classrooms of teachers who were being coached so their colleagues could see how those classrooms were arranged. Other meetings were held during the lunch hour. Teachers attending these meetings determined their focus and direction.

During the second year, the project expanded to include new teachers who chose to be coached, peer coaching teams consisting of pairs of teachers who had received coaching the first year, and a focus on extending cooperative learning and integrated language arts into at least one other subject area through interdisciplinary thematic unit planning.

The Research Study

The research study was designed to monitor change as the teachers and children participated in the project. A research team was formed. It consisted of the two university faculty members who served as coaches, the district staff development facilitator, who also coached, and the principal. Once again, the principal served as a touchstone. The other three members of this team were paired with three "focus" teachers representing grades 1, 3 and 5.

The focus teachers volunteered to participate in the study as teacher-researchers. They agreed to work closely with their research partners throughout the two-year study and to collect data through participant observation, anecdotal records, and diaries. They also agreed to allow researchers to collect data in their classrooms.

Three questions were posed:

1. What is the process of change as teachers implement cooperative learning strategies and an integrated language arts curriculum?
2. Does a pattern emerge as change is implemented?
3. What changes occur in children's attitudes and perceptions about reading, writing and working together?

Data Collection

Data was collected in all classrooms where teachers agreed to participate in the study. Members of the Collaborative Support Team and their teacher partners were either focus researchers or project-wide participants (See Figure 2). Roles of all participants are detailed in Table 1.

Project Structure

Focus Researchers	Project-wide Researchers	Principal	Project-wide Teachers	Focus Teachers
Coach	Coach	Touch-stone	Link Cooperative Learning and Integrated Language Arts	Same
Work Intensively with Focus Teachers	Provide Data and Observations from Project-wide Teachers			
			----------	----------
			may Share Plannning Forms from Coaching	Engage in Intensive Research and Data Collection

Figure 2. Overview of Project Structure

In the three focus classrooms, intensive data collection occurred. In addition to supplying planning forms from coaching, focus teachers and focus researchers collaborated throughout the study, collecting data in a variety of ways, e.g. checklists and surveys, interviews, field notes, diaries, anecdotal records and videotapes (See Figure 3).

Other teachers could choose to participate in a less intensive way. In these project-wide classrooms, data from coaching planning forms was coded and filed for later reference. Support Team partners wrote field notes of any observations they thought pertinent to the research.

The purpose of using multiple methods of data collection was to increase the validity of assertions which address the research questions. The methods of data collection are briefly described below.

Checklists and Surveys

All teachers were invited to complete the Teaching Practices Inventory, a checklist of teaching strategies, at three points during the study: before coaching began, at the end of the first year, and at the end of the second year. Focus teachers were required to complete the checklist. In addition, parents of children in the focus classrooms completed a survey to assess reading/writing behaviors outside school and to provide information regarding the home environment. The parent survey was not repeated at the end of the second year due to changes occurring in the school at that time, including the arrival of a new principal and parental concern over district boundary changes proposed for the following school year.

Interviews

Focus teachers were interviewed at the beginning of the study about the theoretical basis of their teaching as it related to language arts and grouping practices in the classroom, and about their personal goals for the school year as they related to cooperative learning and integrated language arts. They were interviewed again at the end of the first year to assess attainment of goals and change in theoretical understandings of grouping practices. At the end of the second year, these same teachers participated in a videotaped interview about their experiences as peer coaches. A representative sample of ten children in each focus classroom were interviewed

about their perceptions of and attitudes toward reading, writing and working in cooperative groups at the beginning of the study and at the end of the first year. Children from the first grade and third grade research groups were interviewed again at the end of the second and fourth grades. Children from the grade 5 group had dispersed to area middle schools.

Participant observation

Researchers observed extensively in the three focus classrooms throughout year one of the study. During the second year, peer coaching teams consisting of teachers who had expert coaches during the previous year were formed and became the major observers in each others' classrooms. Observations by research team members were limited. Both active (the researcher taught) and passive (the researcher only observed) participant observation were employed by research team members and teacher-researchers. The classroom teacher always determined the researcher's role in her classroom. Data collection methods related to participant observation included field notes on critical incidents (defined in this study as integrated language arts lessons or integrated thematic content area lessons utilizing cooperative learning strategies), diary studies, anecdotal records, and video tapes.

Data Analysis

Data analysis is currently underway utilizing the process outlined in Figure 4. Researchers and their teacher partners are studying transcripts of data in search of emerging patterns. It would be premature to speculate as to what those patterns might be.

DATA ANALYSIS

Data is collected.

Assertions Generated

Patterns emerge from data. (Become descriptors of incidents observed as field notes and technological data are indexed and coded.)

Key linkages among patterns are established.

Assertions Tested and Revised

Key linkages are tested.

Is there disconfirming evidence?

NO

Disconfirming evidence is limited to a few examples

Note for subsequent analysis

YES

Reframe Assertions

Disconfirming evidence outweighs confirming

Discard the assertion

Assertions Finalized

Key linkages are retained which make the largest possible number of connections across both frequent and rare events.

Figure 4. Methods of Data Analysis

However, it can be reported that the cooperative learning/language arts project will continue to be an integral part of the research school despite major changes in the school and the school district. The new principal has asked the peer coaches who worked together last year to coach teachers new to the building. In addition, these coaches are continuing to grow professionally as they explore additional ways to integrate cooperative learning and integrated language arts across the curriculum. For example, Connie now begins some units with cooperative inquiry activities which involve integrated language arts in addition to teaching a text chapter and then using cooperative learning and integrated language arts for follow-up. The fifth grade team is integrating science with history, geography and integrated language arts using cooperative learning as an organizing principle. These are but two examples of the exciting instructional activity at the school.

According to Jerome Harste, "teaching must be viewed as inquiry and researching as teaching. Intellectual leadership for a new theory of literacy instruction will benefit from school and university collaboration as well as from a wider participation and involvement of all educators in basic educational research" (Harste, 1989). The enthusiasm and growth of all who participated in the cooperative learning/integrated language arts project and accompanying research study confirms that university/school collaboration can result in positive outcomes for literacy education.

Project Event	Collaborative Support Team Includes Focus Researchers; Project-wide Researchers	Focus Researchers	Focus Teachers	Project-wide Researchers	Project-wide Teachers	Principal
1. Coop. Lrng Inservice 13 Days w/ Carol Cooper	Participate in Inservice	Participate in Inservice	Participate in Inservice	Participate in Inservice	Participate in Inservice	Participate in Inservice
2. Faculty Inservice Aug. 31	2. Not required to attend	2. Present project to teachers	2. Volunteer to participate in focused rsch	2. No specific role	2. Decide whether or not to participate	2. Present project to teachers
3. Parent Night Sept.	3. Not required to attend	3. Present project to parents	3. No Role	3. No specific role	3. No Role	3. Present project to parents
4. Project is initiated (September)	4. Begin to work with teacher-partner a. Establish rapport b. Try some things together c. Teach children cooperative "rules" d. Attend CST meetings	4. Begin rsch. a. Parent permission b. Teacher checklist c. Parent survey d. Teacher interviews, Children interviews	4. a. Complete teacher checklist b. be interviewed c. Help choose sample of children for interviews d. Collect parent permission slips e. Begin diary, teach children cooperative rules	4. No specific role	4. Begin to teach children coop."rules"	4. Serves as "touchstone" to researchs a. Keep abreast of development b. Supports all participants in initial efforts c. touble shoot d. Begin diary
5. Coop. Lrng. Inservice with Carol Cooper Oct. 566	5. a.Participate in Inservice b.Participate in CST training	a.Participate in Inservice b.Participate in CST training	a.Participate in Inservice	a. Participate in Inservice b.Participate in CST training	a.Participate in Inservice	5.a.Participate in Inservice b. Participate in CST training

6. Implement Coop Lrng Strategies	Coaching: a. Plan, Observe, Analyze lesson w/ teacher; demo-tchg,etc on request of tchr. partner	6a. Same as CST. b. visit classroom as as observer at least bi-weekly. Record field notes during coop. lessons videotape if appropriate; continue diary c. attend support group meetings. d. cont'd diary.	6a. Plan, Observe, Analyze lsns with focus on researcher b. Plan additional coop. lang. arts lsns. Observe while tching; write anecdotal records c. attend support grp mtgs. Continue diary	a. Same as CST b. Turn in obs. records for coding/filing w/tchr. permiss. c. May attend support group meeting d. Record own field notes for sharing.	6a. Same as Focus teachers b. Give or refuse permiss. to code and file observation records. c. May attend support group meetings	c. May attend support group meetings
7. Coop Lrng Inserv. w/Carol Cooper	Same as 5 Above					
8. Con't. Imp., adding "new" strategies	Same as 6 Above					
9. Evaluate Project and Plan next steps	a. Coaching b. Experience coop. lrning/ lang. arts project progress c. Plan for coming year	a. Same as CST b. Same as CST c. In-depth data analysis d. Eval. focus rsch. exp.	a. Same as CST b. Same as CST c. Part. in in-depth anal. of their clsrm data d. eval. focused rsch experience	a. Same as CST b. Same as CST c. Share anecdotal notes; extract patterns to compare/contr w/ focus data anal. Share w/ tchr. partner	a. Same as CST b. Same as CST c. Go over patterns/ conclusions of researcher partner	Plan for coming year
10. Share Project		Project direction oversees				

Table 1 - Roles of Research Participants CST=Collaborative Support Team

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PARALLELS: SUPPORTING STUDENTS AND TEACHERS AS LEARNERS
A Response to Carol Kirk's Paper

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In a foreword to *The Collaborative Classroom* Joan Dalton states, "We know that children learn more effectively when they work together, that they build healthier relationships with themselves and others this way, and that the future survival of our planet will be determined by the way in which people and nations co-operate" (Hill & Hill, Heinemann, 1990). Those notions of cooperation and collaboration extend into all aspects of Dr. Kirk's study.

As I listened to Carol Kirk describe her research to me in earlier informal conversations, and again as I read her paper prepared for today's presentation, it struck me that there were strong parallels between the experiences of the students and those of the teachers involved in the study. And I thought about how infinitely "right" that is, about how perfectly sensible and important it is that what supports growth for one group of learners, the students, should also be able to support growth for another group of learners, their teachers.

The design of Carol's study graphically illustrates some of the parallels which exists between the learning experience for the child and the learning experience for the teacher. In the traditional mode, both groups would work in isolation. In the study, however, students work in cooperative groups of peers; teachers work in teams of peer-partners. For both groups, learning is enhanced through being in the presence of others who are engaged in the processes of reading, writing, and critical thinking. The students plan, conduct, and evaluate their own tasks. The teachers plan, teach, and evaluate lessons and units. The students receive support from their teachers; the teachers receive support from coaches on the Collaborative Support Team. The role of the teacher is to share and guide, teach and evaluate. The role of the coaches is to share and guide, teach, and respond (if a response is requested). Both the students and the teachers are involved in a change process.

As I see it, one of the most significant parallels is that of overcoming the isolation and competition among learners. When Carol states the problem

for students, that of being expected to work in isolation, she is stating a problem for teachers, as well. In essence, the teacher is also told to "Do your own work," "Keep your eyes on your own paper," and "Be quiet." Teachers receive implicit--and sometimes even explicit--messages such as these: "Our scheduling makes it impossible to build in shared planning time"; we can't negotiate for any more inservice days on the calendar"; "if you want to work together, you'll have to do it on your own time"; and, of course, "we won't have any money to pay you for extra time you put in on collaborative work."

I would suggest that some of these same messages extend right up to the university level; they just take different forms. University professors must deal with isolation and competition relative to evaluation procedures for promotion and tenure, and the conflicting demands and expectations for faculty members' roles in regard to teaching, research, and service. The setting and the major players may change, but the problems of isolation--and competition--are essentially the same. If we support the community of learners concept there must be a conscious effort to support collaboration, whether it be for elementary school children, their teachers, or teacher educators.

Writing in the September, 1992, issue of Language Arts, James Hoffman observes: "We need to reconsider such dichotomies as teaching/learning, teachers/teacher educators, and research/practice. Schools are, first and foremost, contexts for learning. Teachers who are not learning themselves do not belong in a school.

Teachers who are learners apply the skills of research. They are quite capable of generating new knowledge not just for themselves but for the field. The school as a 'community of learners' is not just a goal; it is a necessity. Schools must look for ways to encourage, support, and reward teachers who value their own learning" (370). I submit that Dr. Kirk's ethnographic study will contribute to our understanding of how this can be accomplished.

INTERNATIONAL CONNECTIONS IN THE TRADITION OF ADVOCACY FOR TEACHER PROFESSIONALISM: DEWEY TO STENHOUSE TO SCHON

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> Ordinary experiences, the experience of a man's own life, can teach him much; but its study cannot travel beyond the lives of individual men. History places before us, in one comprehensive view, the experience of long periods, and of men in general. It is progressive experience; it is experience in the average. It helps us to be forebearing and tolerant as we trace the mistakes and differences of others; it teaches us to think less of our present difficulties, and of our own plans and systems, and the rocks and wrecks we see around us and calls upon us to be prudent in the management of our own little vessel, and to profit by the folly as well as the wisdom of those who have gone before.
>
> Rev. J.G.C. Fussel, M.A., H.M.I., Middlesex County Report on Church of England Schools (British Parliamentary Papers, 1860)

Fussel's words can now be considered in the light of their own counsel. His "folly" of excluding the female sex in the use of the "mother tongue" was characteristic of his age.

More significantly, in 1860 women were excluded from much more, including eligibility for Fussel's own exalted position of H.M.I., Her Majesty's Inspector of Schools. Yet, the wisdom of his words should not be lost in our antipathy for the sexism of a bygone age. Educators in the last decade of the twentieth century can learn much about "the management of our own little vessels" by looking at the experiences of our various predecessors; from Fussel's Middlesex county of 1860 to John Dewey's University of Chicago Lab School at the turn of the Century to Lawrence Stenhouse's Humanities Curriculum Project to Donald Schon's contemporary design school at M.I.T. An historical voyage will take us through the era of "payment by results" to the "new education"; from "progressive education" to "reflective practice" and "action research." We will be able to observe "progressive experience" or, perhaps more appropriately, the experience of progressivism as proffered by Dewey and reincarnated and reshaped by Stenhouse and Schon into a valuable and practical theory of extended teacher professionalism. (The term extended professionalism is attributed to Hoyle, 1972 by Stenhouse, 1975.)

Teaching remains a quasi-profession. I make this statement reluctantly as a description of the "is" not "ought" condition. I believe that this condition exists because many education leaders have assumed an authoritarian position with teachers and have endeavored to control the options and actions of those they supervise. Despite recent advertency for empowerment and site-based management, bureaucratic structures are prevalent and instuctional improvement is widely looked upon, at least in public schools in the United States, as the task and domain of administration.

An historical frame of reference enables us to explore the products of authoritarian practices and discuss alternatives which, though conceptualized generations ago, continue to offer great promise. There is a strong tradition of advocacy for teacher professionalism in both the American and British experience. It is my purpose to review this tradition and to make connections which affirm its promise.

Payment by Results

I would venture to guess that few American educators or academics know much about the thirty year period known in Great Britain as the era of payment by results. To many educators in the U.K., this period is a critical and defining moment in the history of British education. The lessons it offers, particularly to a time of renewed promulgation of national standards, generally applied assessment, and specifically delineated results (outcomes), will enhance our own comprehensive view and enlighten our vision of the future of education.

In 1860, the British government was concerned that spending for support of education had been steadily increasing over the twenty years since Parliament first allocated funds to support education. This concern, coupled with the findings of a national commission on education (The Newcastle Commission, 1856) which decried the failure of schools and teachers to train labour class elementary students in basic literacy skills, prompted the government's Education Department to rewrite grant distribution procedures. Under this new system, called payment by results, government aid to schools was allocated on the basis of the number of students who passed an annual examination in reading, writing, and arithmetic. The determination of pass or fail was made by well paid, highly educated government officials who were not

teachers. These gentlemen were given the title Her Majesty's Inspectors of Schools or H.M.I. (Their ranks included not only J.C.G. Fussel, but also the poets Matthew Arnold and Hugh Arthur Clough.) School boards and managers, threatened with the loss of critical financial resources, cracked down on teachers, emphasizing achievement of the government established minimal standards, often by tying teacher salaries to the amount of the annual grant obtained through examination. The new grant distribution process was also a response to fears expressed in the Newcastle report that teachers were becoming overeducated and aspiring to learning (and teaching) above their station. Thus, payment by results attempted to control teachers by paying the grants to school managers and focusing on and rewarding the achievement of carefully defined and limited outcomes.

What were the results of payment by results? A government commission (The Cross Commission 1886-88) was established to examine the state of government supported education. Its findings (British Parliamentary Papers) revealed a system disdained by teachers, school managers, and the inspectors themselves. Payment by results schools were characteristically impoverished learning environments where near total emphasis on performance left little opportunity for learning. The teacher served as an instrument for inculcating skills and information necessary for her/his students to meet the examination standards. Teachers felt "overpressured" by the system and its enforcers and, in turn, "overpressured" students to cram to meet the standards. Lessons were, as a result, mechanical, sterile and even, at times, fraudulent (Nelson, 1987). Perhaps the educators' perception of "payment by results" was best expressed by the chief H.M.I., Edmond Holmes who described the effects of payment by results on student and teacher. Looking back at the system in 1907 Holmes wrote:

> In nine schools out of ten, on nine days out of ten, in nine lessons out of ten, the teacher is engaged in laying thin films of information on the surface of the child's mind, and then, after a brief interval, in skimming these off in order to satisfy himself that they have been duly laid. He cannot afford to do otherwise. If the child, like the man, is to be "saved" by passive obedience, his teacher must keep his every action and operation under close and constant supervision. Were the information which is supplied to him allowed to descend into the subconscious strata of his being, there to be dealt with by the secret, subtle, assimilative processes of his nature, it would escape from the teacher's

> supervision and therefore from his control. In other words, the teacher would have abdicated his function. He must therefore take great pains to keep the processes by which the child acquires knowledge (or what passes for such) as near to the surface of his mind as possible; in rivalry of the nurse who should take so much interest in the well-being of her charges that she would not allow them to digest the food which she had given them, but would insist on their disgorging it at intervals, in order that she might satisfy herself that it had been duly given and received. It is no doubt right that the teacher should take steps to test the industry of his pupils; but the information which the child has always to keep at the call of his memory, in order that he may give it back on demand in the form which he has received it, is the equivalent of food which its recipient has not been allowed to digest. (Holmes, 1912)

Little about teaching in the era of payment by results could be considered autonomous or professional. But the failure of this approach, evident after a long period of implementation, coupled with the expansion of labour class power toward the turn of the century, paved the way for a new teacher role. In 1890, after thirty years of educational control, the system of payment by results was abandoned by the Education Department. In its code of 1904, the Department described the role of the teacher to be that of "assisting" students "according to their different needs" (Maclure, 1965). A year later, the department's "Handbook of Suggestions for the Consideration of Teachers and others concerned in the work of Public Elementary Schools" called for unlimited autonomy for teachers.

> The only uniformity of practice that the Board of Education desires to see in the teaching of Public Elementary Schools is that each teacher shall think for himself such methods of teaching as may use his powers to the best advantage and be best suited to the particular needs and conditions of the school.
> (British Parliamentary Papers, 1905)

These directives not only validated the emerging autonomy of teachers but they also facilitated the expansion of progressive education methods which gradually replaced the instrumentary processes of payment by results. These methods and the curriculum which accompanied them have been referred to in both Great Britain and the United States as "the new education" (Selleck, 1968; Dewey, 1899).

The New Education and John Dewey

The years surrounding the turn of the century were major formative years for modern education. In both England and the United States, teacher professionalism was enhanced through the growth of teacher unions and lengthened teacher education programs (Johnson, 1988). A developing academic community created the environment for the development, elaboration, and exchange of pedagogical theory.

In England, the failure of payment by results invigorated ideas opposed to the instrumentary methods which had been employed to meet government standards. R.J.W. Selleck, in a comprehensive study of this turn of the century period (1968), found this "new education" to be a conglomeration of influences and approaches to teaching and learning. Many new ideas originated outside of England in earlier epochs and were modified and applied by local, regional, and national advocates. Among the major theoretical constructs advanced during this period were ideas of Johann Pestalozzi, Friedrich Froebel, Maria Montessori, Johann Herbart, and John Dewey. Selleck does not credit Dewey with the same measure of influence on British education as that of Pestalozzi or Herbart, particulary during the 1870-1914 time period which Selleck studied, but he does cite the emerging influence of Dewey's ideas during the later part of the period. These concepts were promoted by J.J. Findley of the University of Manchester and Alexander Darrock of Edinburgh (1968, p.208). Many English "naturalists" and child-centered learning advocates like Holmes, Margaret McMillan, and Harold Gorst would have felt comfortable in Dewey's company. Dewey's ideas in two areas, the role of the teacher in the learning process, and the importance of reflective thought to experiential learning, bring him to stage center in this paper.

The emergence of competing theories which comprised the new education is itself evidence of the dramatically changed role of the teacher. In England, payment by results, practically guaranteed, for the teacher, the overly conscientious nursemaid role described (above) by Holmes. Traditional American pedagogy was mechanistic as well. Dewey often refered to the "new education" as he criticized subject-centered, passive/receptive learning conditions which predominated in the American schools of the late 19th century. The menu of theoretical choices offered the teacher in the new education is evidence of increasing autonomy - a new professionalism. New freedom gave the teacher the

choice to be a naturalist, a Herbartian, a progressive, a traditionalist, or some eclectic mixture of her/his own device. Progressive education provided the greatest challenge for teachers and John Dewey was progressive education's most prolific and challenging voice. Dewey wrote volumés on learning but relatively little commentary which directly addressed teaching. Perhaps this was due to his belief in the dual centrality of learner and experience in the educative process. Early in his public career (1897) he offered in his "pedagogic creed":

> I believe that under existing conditions far too much of the stimulus and control proceeds from the teacher, because of the neglect of the idea of the school as a form of social life.
>
> I believe that the teacher's place and work in the school is to be interpreted from this same basis. The teacher is not in school to impose certain ideas or to form certain habits in the child, but is there as a member of the community to select the influences which shall affect the child and to assist him in properly responding to these influences. (Dewey, 1897, pp. 22-23)

To advance these beliefs, Dewey devoted much of his laborious prose to discussions of the nature of experience, the social purposes for schooling, and the developmental characteristics of children and learners (Dewey, 1916, 1925, 1938). Nonetheless, his writings also contain the seeds of thought which would germinate and grow into the flower of reflective practice and classroom-based research. Some of these ideas take the form of direct expression about teaching while some may be inferred from Dewey's more philosophical and psychological works dealing with logic, inquiry, and the relationship of thought and action.

Much of the Dewey's direct commentary on teaching occurs in his early writing during and around the years of his involvement with the laboratory school at the University of Chicago. Dewey's belief in the absolute importance of experience in learning set him in clear opposition to the mechanistic teacher role of traditional education. But he was not inclined to argue (as perhaps would Rousseau, Froebel, or others of the naturalist bent) that learning, occurred effectively without intervention from a teacher. According to Dewey, if learning is best accomplished through experience, then the purpose of formal schooling is to select and organize experiences which are important to the growth of the individual and meet the needs of society. But

he was clear that the adult should not impose specific ideas on students but rather join in a partnership in learning with the student.

When the parent or teacher has provided the conditions which stimulate thinking and has taken a sympathetic attitude toward the activities of the learner by entering into a common or conjoint experience, all has been done which a second party can do to instigate learning. The rest lies with the one directly concerned. If he cannot devise his own solution (not of course in isolation, but in correspondence with the teacher and other pupils) and find his own way out he will not learn, not even if he can recite some correct answer with one hundred per cent accuracy. We can and do supply ready-made "ideas" by the thousand; we do not usually take much pains to see that the one learning engages in significant situations where his own activity generate, support, and clinch ideas - that is, perceived meanings or connections. This does not mean that the teacher is to stand off and look on; the alternative to furnishing ready-made subject matter and listening to the accuracy with which it is reproduced is not quiescence, but participation, sharing, in an activity. In such shared activity, the teacher is a learner, and the learner is, without knowing it, a teacher - and upon the whole, the less consciousness there is on either side, of either giving or receiving instruction, the better. (Dewey, 1916, p.160)

The idea of a teacher as a reciprocal learner participating in learning experiences rather than a fountain of knowledge is important to the notion of extending professionalism through reflective practice. When the teacher becomes the learner then the experience of teaching, manifest in actions and modified through reflection, becomes the professional development process. When this action/reflection cycle is enhanced by meaningful scrutiny of the learning environment (i.e. classroom-based research) extended professionalism results.

Much of what Dewey believed set him against the academic current of his time. Emerging in the early decades of the twentieth century was a new science of educational thought. Owing its genesis to connections with analytical psychology and burgeoning research endeavors in the natural sciences, educational research began in earnest. Despite difficulties in adapting its mathematical methods to social organisms, quantification became synonymous with scientific rigor in these new research initiatives. Dewey believed in

science and the importance of improvement through rigorous investigation. However, he rejected the sanctity of numbers and suggested a different focus for inquiry in education.

Nor need the progressive educator be unduly scared by the idea that science is constituted by quantitative results, and, as it is often said, that whatever exists can be measured, for all subjects pass through a qualitative stage before they arrive at a quantitative one; and if this were the place it could be shown that even in mathematical sciences quantity occupies a secondary place as compared with ideas of order which verge on the qualitative. At all events, quality of activity and of consequence is more important for the teacher than any quantitative element. If this fact prevents the development of a certain kind of science, it may be unfortunate. But the educator cannot sit down and wait till there are methods by which quality may be reduced to quantity; he must operate here and now. If he can organize his qualitative processes and results into some connected intellectual form, he is really advancing scientific method much more than if, ignoring what is actually most important, he devotes his energies to such unimportant by-products as may now be measured. (Dewey, 1928, p.118)

It would take theorists from our time to add detail and application to this call for qualitative science in education, but it is important to note that Dewey's emphasis on quality dramatically preceded the "innovation" of quality management practices in schools. John Dewey established a tradition. Call it progressivism or developmentalism or experiential learning or quality schools, Dewey's thought set important precedents which echo in the so called innovations of our time. I will refer again to this pioneer as we look at what I believe to be two of the most promising extensions of his thinking - reflective practice and classroom-based research.

Reflective Practice and Classroom-based Research

Reflective practice is rapidly becoming a widely known and accepted term in the education lexicon. The March 1991 issue of Educational Leadership was devoted to "The Reflective Educator," an ASCD sponsored conference for "the reflective practitioner" was held in Chicago this past May, and a widely read textbook author, Thomas J. Sergiovanni has produced an education leadership book entitled The Principalship: A Reflective Practice Perspective (1991). But

the major credit for promoting this approach to professional development goes to Donald Schon, a professor in urban studies and education at Massachusetts Institute of Technology, who promoted the term and introduced the processes it represents in the 1983 work The Reflective Practitioner and elaborated on the theory in Educating the Reflective Practitioner (1987). Already much has been written about reflective practice as educators have rallied around this approach in reaction to the technical/rational clinical methods which dominated supervision in American schools in the 1980s (Sparks-Langer and Colton, 1991). Reflective practice is concerned with the development of professional competence through a process of action-reflection. Its kinship with Dewey's experience-based learning is not coincidental (Schon's Harvard Ph.D. thesis was on Dewey's theory of inquiry). Reflective practice theory acknowledges the complexity of the interactions involved in teaching and learning. At the heart of the matter is the individual nature of each learner, the varied experiences and understandings brought to the learning situation, and the unpredictability of the situation itself. The complexity and unpredictability of the learning context make application of fixed or standard techniques unreliable at best. Schon offers the design school concept, used in architectural schools, as the paragon for applying action-reflection principles to teacher preparation, administrator training, and other professional occupations. Educators who are aware of the complexity in their profession (see the classroom teaching model of Dunkin and Biddle as quoted in Haysom, 1985) will readily see the benefit of reflective practice processes as applied in the design school setting.

> Among those who have considered the broader sense of designing, some have chosen to focus on the management of complexity; others, on imaging an ideal to be realized in practice; still others, on search within a field of constraints. Without ignoring any of these features, I prefer Dewey's view of the designer as one converts indeterminate situations to determinate ones. Beginning with situations that are at least in part uncertain, ill defined, complex, and incoherent ("messes," as Russell Ackoff, 1979 has called them) designers construct and impose a coherence of their own. Subsequently they discover consequences and implications of their constructions - some unintended which they appreciate and evaluate. Analysis and criticism play critical roles within their larger process. Their designing is a web of projected moves and

> discovered consequences and implications, sometimes leading to reconstruction of the initial coherence - a reflective conversation with the materials of a situation. (Schon, 1987 p.42)

For educators, the "materials of the situation" frequently are people - students, parents, other professionals. Thus, this reflective conversation can be genuinely reciprocal and should become a learning experience for the coach, mentor, or professor. (Again it was Dewey - see above - who first suggested this reciprocity). The reflective journal is an excellent vehicle for this converation (Wibel, 1991; Surbeck, Han, and Moyer, 1991; Diakiw and Beatty, 1991). Seminars, one-on-one coaching sessions, and cooperative action research projects are also effective where time and resources will allow their meaningful utilization.

Schon's work was initially targeted at schools for professional preparation. He also called his works "primers" and hoped to see his inquiry developed and extended (1987,p.xiv). This extension is logical into the two major arenas of education leadership - curriculum development and supervision. In both arenas much has already been done by British theoreticians and practitioners. There is a marked kinship between the ideas of Dewey and Schon and several British theorists, most notably Lawrence Stenhouse.

Chronologically, the British interest in extended professionalism for teachers preceded Schon. Stenhouse's influential An Introduction to Curriculum Research and Development was first printed in 1975 and John Elliot was writing about "reflecting where the action is" as early as 1973 (cited in Stenhouse, 1975).

The autonomy of classroom teachers in the state supported schools of Great Britain ensued as a reaction to the long term failure of the system of payment by results. Stenhouse argued for the extension of this general autonomy into all areas of curriculum development. He opposed the research, design, and disseminate model which long dominated curriculum work and argued persuasively against objectives oriented formats. (Part of his argument related to the possible extension of the objectives model into performance contracting. In cautioning against this approach, Stenhouse encouraged Americans to consider the British experience with payment by results, 1975, p.69.)

Stenhouse's successes and failures in classroom applications of the Humanities Curriculum Project convinced him of the critical importance of the classroom teacher in any curriculum development process. Like Dewey, he wrote of a science concerned with the qualitative uniqueness of each educational setting.

> ... educational ideas expressed in books are not easily taken into possession by teachers, whereas the expression of ideas as curricular specifications exposes them to testing by teachers and hence establishes an equality of discourse between the proposer and those who assess his proposal. The idea is that of an educational science in which each classroom is a laboratory, each teacher a member of the scientific community. There is, of course, no implication as to the origins of the proposal or hypothesis being tested. The originator may be a classroom teacher, a policy maker, or an educational research worker. The crucial point is that the proposal is not to be regarded as an unqualified recommendation but rather as a provisional specification claiming no more than to be worth putting to the test of practice. Such proposals claim to be intelligent rather than correct. (Stenhouse, 1975, p.142)

This teacher/researcher role has major implications for professional development efforts and promising connections to reflective practice. Stenhouse uses Hoyle's term of the extended professional to describe how the practitioner becomes more than a competent, skilled, efficient teacher.

> ... the outstanding characteristic of the extended professional is a capacity for autonomous professional self-development through systematic self-study, through the work of other teachers and through the testing of ideas by classroom research procedures. (Stenhouse, 1975, p.144)

An appropriate synonym for Hoyle's extended professional is Schon's reflective practitioner. The design school is a laboratory for ideas and the materials for discourse could be students, interactions, or curriculum ideas.

Theories Applied - Action Research

In 1896 John Dewey established the Laboratory School at the University of Chicago. In 1975 Lawrence Stenhouse called for each classroom to be laboratory for testing curriculum ideas. In 1987 Donald Schon proposed the design school as the optimal environment for developing professional knowledge. Action research promises to bring together the best ideas from the long tradition of

advocacy for extended teacher professionalism and do so in a practical process for curriculum development and research, and professional development and supervision. In his 1933 work, How We Think, John Dewey wrote: "The problem of the pupils is found in the subject matter; the problem of the teachers is what the minds of pupils are doing with this subject matter" (p.275). Dewey made this statement in the context of discussing his notion of the teacher as a leader in a learning community. The statement is a call to inquiry; the kind of inquiry that goes far beyond the simple regurgitation demanded by Holmes' obsequious teacher/nanny. Dewey later delineated this form of inquiry in another epistemological work, Logic: The Theory of Inquiry (1938).

> Inquiry is the controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole. (p.104)

Implicit in this definition is the action of the agent of inquiry. Transforming and converting are actions and their presence in this definition takes inquiry beyond a passive perspective that would characterize a more traditional "objective" study. Dewey further described this functional imperative in the inquiry process.

> This examination (of a suggestion which is becoming an idea through inquiry) takes the form of reasoning, as a result of which we are able to appraise better than we were at the outset, the pertinency and weight of the meaning now entertained with respect to its functional capacity. But the final test of its possession of these properties is determined when it actually functions - that is when it is put into operation so as to institute by means of observations facts not previously observed, and is then used to organize them with other facts into a coherent whole. (1933, p.110)

This activist approach to thinking, research, and inquiry is the basis for action research. Action research is a cyclical process involving the institution of a concept, the careful observation of an environment, the intervention of the observer, and further reflection upon and modification of the environment. The goal and destination of the process is a coherent whole; but the horizon is vast and the ideal is always far enough beyond reach to perpetuate the journey.

The cause of action research was advanced by the work of the American social scientist, Kurt Lewin, and British educator, John Elliot. Writing in the forties, Lewin suggested the spiral of planning, executing, reconnaissance, and modifying (1948). Elliot and his colleagues in the Ford Teaching project extensively utilized action research as a means of helping teachers in the U.K. develop inquiry learning in their classrooms (Kemmis, 1988). Action research promises to be the operant process for both the classroom-based curriculum development and research principles advocated by Lawrence Stenhouse and a reflective practice theory for teachers' professional development. John Haysom (1985) offers a diagram of the process which I have found to be very helpful in designing action research projects (Figure 1). Curriculum proposals enter the process under the heading "Interesting Innovation." The sources of such innovation are various and could include national or local curriculum leaders and developers, parent and community groups, groups of teacher working in consort, or individual teachers. The source is less critical than the nature of the proposal.

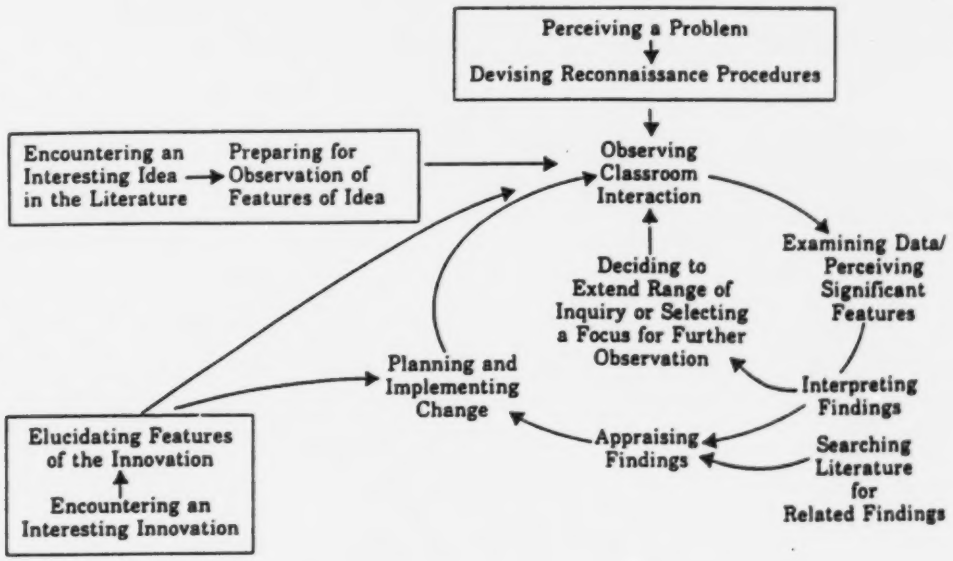
Perceiving a Problem
Devising Reconnaissance Procedures
Encountering an Interesting Idea in the Literature
Preparing for Observation of Features of Idea
Observing Classroom Interaction
Examining Data/ Perceiving Significant Features
Deciding to Extend Range of Inquiry or Selecting a Focus for Further Observation
Planning and Implementing Change
Interpreting Findings
Elucidating Features of the Innovation
Encountering an Interesting Innovation
Appraising Findings
Searching Literature for Related Findings

FIGURE 1. EXPANDED RESEARCH CYCLE (Haysom, 1985, p.162)

> ... the proposal is not to be regarded as an unqualified recommendation but rather as a provisional specification claiming no more than to be worth putting to the test of practice. Such proposals claim to be intelligent rather than correct.

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> ... a curriculum (is) a particular form of specification about the practice of teaching and not a package of materials or a syllabus of ground to be covered. It is a way of translating any educational idea into a hypothesis testable in practice. It invites critical testing rather than acceptance. (Stenhouse, 1975, p.142)

The rest of the action research cycle accepts this invitation, beginning with observation of the particular circumstance (classroom) in which the curriculum is to be tried and continuing with systematic application, observation, reflection, and adjustment. Kemmis (1988) declared that this ought to be a group process and introduced the concept of a "thematic concern" which is arrived at through group consensus and provides the foundation for both the selection of innovations and the methods of their application.

The role of education leadership is crucial in this process. The old supervisory method of expect and inspect failed to recognize the dramatic effect of true empowerment through recognition of teacher professionalism. The new supervision places the requirement for improvement and growth upon the teacher. But through reflective practice and action research this requirement is enabling not restrictive; it is democratic, not autocratic or bureaucratic. The new supervision is anything but passive, however. Until teacher preparation institutions provide student teachers with experiences in action research and reflective practice there will be a major inservice requirement; resources will be required to support the extended professionalism of the teacher; and advocacy and definition will be demanded by school constituents. But the most important leadership task will be the development within the school of a "covenant of shared values" (Sergiovanni, 1991) which will direct the development of thematic concerns and provide the moral foundation for relationships among the people of all ages who live and work there.

Prospectus

There is a tradition of advocacy for extended teacher professionalism which is progressive experience connected across time and countries by a common thread. This thread joins the post-payment by results new educationists in England to John Dewey in Chicago, extends, in our time, back across the Atlantic to East Anglia to Lawrence Stenhouse and back once more to Donald Schon at M.I.T. I believe this thread is essentially a philosophical

perspective which might best be conceptualized in the word democracy. It is no coincidence that anti-democracy politician Robert Lowe devised payment by results or that the new education accompanied the rise of the labour party in England. Democracy is a compelling force in the writing of John Dewey and both Stenhouse's teacher researcher and Schon's reflective practitioner are liberated, autonomous individuals working cooperatively with others to address the needs of complex social environments. It is in democracy - a balancing of the needs of individuals with the needs of social groups - that schools might best find the basis of a covenant of shared values. A mission so defined would be executed through action research methods, with the prospect of moral compatibility between means and ends.

But there is, as well, a tradition of resistance to extended professionalism in both the United States and the U.K. This resistance has taken the form of government regulation, standardized curriculum and assessment, teacher testing, and clinical supervision. It is ironic that at the same time that site-based management, teacher empowerment, shared decision making, and total quality management are being heralded as the new wave of education reform, there are others advocating national assessment and outcomes-based curriculum. In the U.K. greater emphasis on accountability and control of teachers has taken the form of a national curriculum with an elaborate and time-consuming assessment component. Its avowed purpose "to secure the best return on resources invested in education" (Brooks, 1992, p. 28) rings similar to Lowe's justification for payment by results, "if it is not cheap, it shall be efficient, if it is not efficient it will be cheap" (Hansards, vol. CLXV, col. 229). Perhaps another thirty years of folly will be needed to reverse the pendulum swing.

The choice for democracy in education is ultimately a moral one. If the school is indeed a miniature community then its members and constituents must choose the processes which will help determine the kind of community it will be. Payment by results was a choice for control. Control over students through minimal standards. Control over teachers through expectations about these standards and careful inspection of their attainment. The new education sought to liberate teachers and expand learning possibilities for students. The evolution of this progressive viewpoint has led to the refinement of techniques for empowering teachers to be fully professional in their choices

about improved learning opportunities for their students. As we guide our own vessels through the cloudy and tempestuous waters of contemporary education it is important that we are aware of the long, international tradition for extended professionalism for teachers. This tradition offers the lessons of progressive experience to guide our voyage to the ideal of a democratic education.

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ASSESSMENT OF PRACTICAL SKILLS IN SECONDARY SCHOOL SCIENCE COURSES

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The rationale for carrying out practical work in schools

Experimentation is an integral part of the scientists' daily work and it would seem natural that any school science course should include aspects of practical activity. In the United Kingdom a great deal of time and effort is devoted to small group practical work in the teaching of science. It is not uncommon for a third of the time of 16 - 18 year old scientists to be spent on practical work, (Thompson, 1975) while most 11 - 13 year olds will spend well over half their science lessons doing practical work (Beatty & Woolnough, 1982). The importance of practical work is emphasised in the policy statement of the Association for Science Education (ASE):

> Knowing about science is important, but being able "to do science," to act scientifically, to apply scientific knowledge, understanding and skills in individual and collective situations is more important. Learners should acquire scientific competencies and know how to use science in a positive way. (ASE, 1992)

The Science National Curriculum (Department of Education and Science (DES), 1991) and examination syllabuses for post-16 students reinforce the significance of experimentation by allocating a significant percentage of the final marks to laboratory work (Table 1).

Table 1: Examples of mark allocation for practical activities in science courses in England and Wales

Syllabus	Percentage of total mark allocated to practical work
Science National Curriculum in key stage 3	25
Science National Curriculum in key stage 4	25
WJEC Physics GCE 'A' level examination	33*
WJEC Chemistry GCE 'A' level examination	17.5
WJEC Biology GCE 'A' level examination	20

N.B. WJEC = Welsh Joint Education Board

* The Board recommends that a minimum of 20% of teaching time should be devoted to practical work.

Not all science teachers, however, are prepared to give significant amounts of time to practical work. They may argue that practical work involves many hazardous procedures which could result in injury to their students. Alternatively they may reason that time spent on carrying out experiments would be more effectively used in getting students to learn and remember scientific knowledge. However, as all examination syllabuses in the United Kingdom now require an element of assessed practical work it is true to say that all students experience some hands-on work in a laboratory.

This would appear to be in marked contrast to the experiences offered to young people in schools in the United States where a recent report indicated a decrease in high school laboratory work. A nation-wide survey by the National Science Foundation (reported in Times Educational Supplement, 1988) disclosed that only 39 per cent of the high school science courses contain any laboratory work - a decline of 15 per cent over the past decade. The main reasons for not doing practical work are:

- the availability of computer simulations;
- the worry about the possibility of children hurting themselves or others with chemicals and apparatus;
- the concern over experimenting on both alive and dead animals.

The introduction of National Curriculum Science and new post-16 courses in England and Wales gives increased emphasis to practical work. But the very nature of what is meant by 'practical work' in schools is in the process of changing as the new curricula are introduced. The next section summarises the modes of practical activity that are currently in use in the United Kingdom.

Types of school based practical work

Although a significant amount of time is allocated to practical work in schools in the United Kingdom, the nature of the type of practical tasks undertaken varies from classroom to classroom.

Practical work generally falls in to one of the following five categories:

1. Illustrating a theory or concept

The assumption underpinning this approach to practical work is that students will have a better understanding of a scientific idea if they have observed an experiment to illustrate that idea. While this may be true in some cases it is certainly not true in all situations especially when the experiment does not yield the desired results and when the complexities of the task mask the end result.

However, illustrative experiments can often be a great motivator for students' learning and act as an initiating step for further work.

2. Proving a theory

This approach requires the student to generate the 'correct' scientific answer by carrying out experiments. The Nuffield Science schemes of the 1960s adopted this enquiry based approach in their General Certificate of Education 'Ordinary' and 'Advanced' level courses. It is not expected that the students would be able to rediscover each individual principle in the syllabus but that the students should be guided through the work and be expected to work and think like a scientist.

Woolnough and Allsop (1985) express doubts over the intellectual honesty of this type of practical work. They argue that the student quickly realises that there is a 'right' answer and often becomes frustrated by the 'practical game' that they must play before the teacher tells them the 'correct' answer.

3. Investigations

This type of practical work is favoured by the writers of the National Curriculum Science (DES, 1991). Alternative names for this type of work are 'explorations' or 'problem solving activities.' This approach requires the student to pose a problem, suggest how the problem may be solved, carry out the practical investigation, draw conclusions, and make evaluations. The problem may arise from suggestions by the teacher or may originate from a student's interest. Unlike the approach described in section 2 above, this type of practical does not generally aim to come up with a 'right' answer. The emphasis is on the scientific approach to the problem. Students will have a firm understanding of some

science concepts which they need to frame the problem and will, hopefully, gain new knowledge as they proceed with the task.

4. Following instructions

Many practical tasks are presented to students as a list of instructions, usually on a worksheet or in a workbook. Using this method students can carry out multi-step procedures with minimal help required from the teacher. Well produced worksheet schemes can allow the student to progress at a rate corresponding to the individual's ability.

Critics of this approach would say that this reduces science to little more than 'cookery' with students ardently following a recipe.

5. Learning basic skills

Some teachers would argue that it is necessary to teach students some fundamental science skills before they can be allowed to carry out whole experiments. Lesson time has been allocated to sessions on such topics as the correct use of the Bunsen burner or how to read measuring instruments accurately. The majority of teachers, however, appear to be of the opinion that students will develop these skills as they carry out their practical exercises.

In the past much of the practical work has fitted in with a content-led curriculum and it appears to have been a succession of experiments used to illustrate aspects of scientific knowledge (section 1, above). Her Majesty's Inspectors of Schools (HMI), in their survey of secondary schools in 1979, reported that,

> Many science teachers recognised the importance of practical work. They believed that students should have first-hand experience in laboratories in order to acquire skills in handling apparatus, to measure and to illustrate concepts and principles. Unfortunately practical work did not go further than this and few opportunities were provided for students to conduct challenging investigations. (HMI, 1979)

As mentioned previously, the National Curriculum requires students to be able to carry out investigative work. The underlying philosophy behind this approach is one of the learner being involved in the personal construction of new meaning and understanding. It is based on the assumption that knowledge cannot be directly transmitted from teacher to student. For meaningful learning to occur, students must construct their own understanding by modifying their pre-existing ideas in the light of the new insights gained

from their practical activity. This constructivist approach to teaching is based largely on the work of the Children's Learning in Science Project (CLISP) at the University of Leeds and the work of Professor Driver (Driver, 1983 & Needham, 1987) and is now widely accepted in science education. This type of practical work, unlike illustrative activities, cannot be accomplished by the student simply following a set procedure or recipe. It involves both physical and mental processes and gives rise to new understanding of science concepts. To many teachers this involves a radical rethink of their teaching styles and the arrangements they have previously made for carrying out practical work. This change is likely to take place over a number of years (see Figure 1) with many teachers using a variety of approaches.

Figure 1: Possible changes in approach to practical work as teachers become confident in using the National Curriculum Science Statutory Orders

Teachers' experience growing -->

	Teacher directed One or two strands visited	-->	-->	Task originates from student Three strands visited

<-- Illustrative and confirmatory type practicals

Attainment target 1: Scientific investigation (Sc1) has been set out in the National Curriculum Statutory Orders under three headings or strands. These strands refer to students' ability to:

i) ask questions, predict and hypothesise;

ii) observe, measure and manipulate variables;

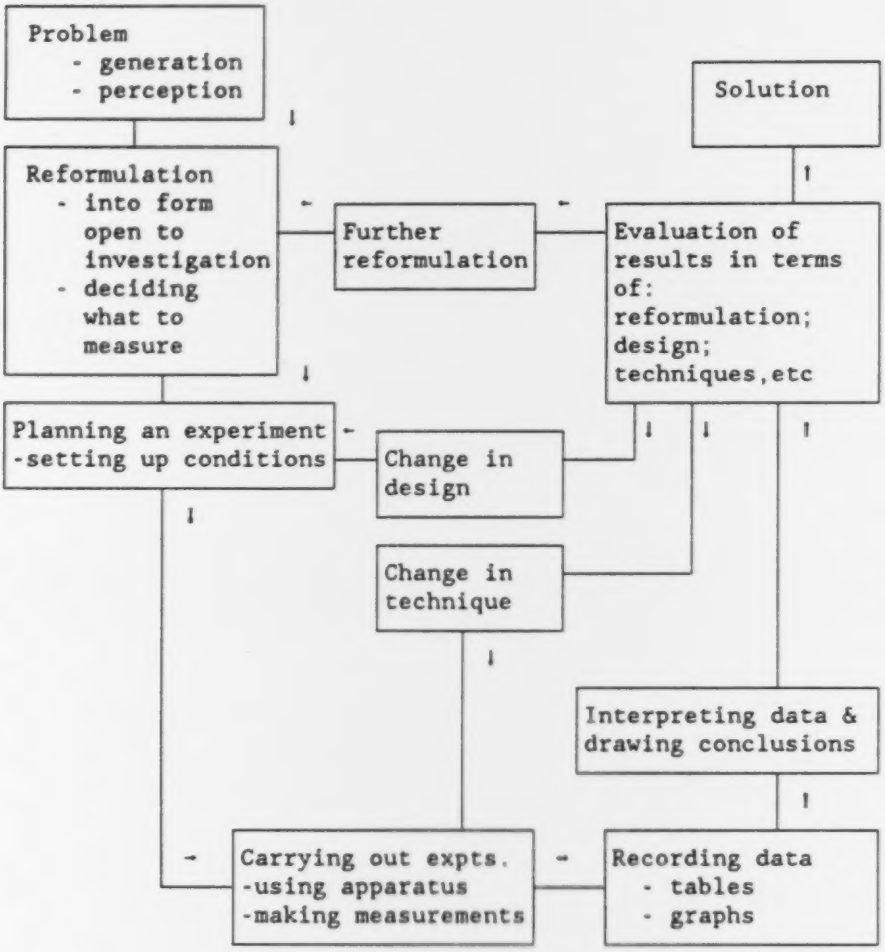
iii) interpret their results and evaluate scientific evidence.

The Assessment of Performance Unit (APU), which was set up by the Department of Education and Science in 1975, has developed methods of assessing and monitoring the achievement of children in schools. Their extensive school trials have contributed a wealth of information on how students perform in scientific investigations (e.g Assessment of Performance Unit, 1991) and other aspects of practical work such as the ability to use

measuring instruments accurately and the making and interpretation of observations. The APU has developed a problem solving model (Figure 2) from a consideration of those aspects of students' performance in science it was thought appropriate to assess in their national monitoring research. It gives a picture of the 'ideal' approach to carrying out investigations and as such has helped teachers and students to clarify their own thoughts. It provides a very useful guide in designing and planning investigations, and has been adapted and modified extensively in many published schemes. Amongst their many conclusions, there are five significant ones that relate to the assessment of investigations carried out by 13 and 15 year olds:

- Students are able to write up a straightforward investigation they have just carried out with a fair degree of accuracy and completeness.
- Practical tasks, with clues available in the apparatus, allow more students to comprehend what the problem is about and to begin an investigation.
- In the practical tasks, the feedback that is available throughout the investigation assists in the development of appropriate procedural strategies.
- Investigations involving taught science concepts can cause some students to go astray - by failing either to define the problem adequately or to control important variables.
- Written versions of the practical tasks assess different combinations of 'processes' and procedures. They cannot be used as a substitute for practical work but may have validity in their own right. (Gott & Murphy, 1987)

Figure 2: A problem solving model



(based on Gott & Murphy, 1987)

The APU has played a significant role in providing teachers with information about carrying out and assessing investigations (Assessment of Performance Unit, 1991). Many of the investigations used in secondary schools at present are based on ideas and strategies originally formulated by the APU.

Methods of practical assessment

There are three basic methods of carrying out practical assessment that are used in schools in the United Kingdom:

1. set practical tests (arranged by an examination board)

2. set practical tests (arranged by the teacher)
3. continuous assessment as part of the normal practical activities of the class

Until the introduction of the General Certificate of Secondary Education Examination (GCSE), an examination designed for 16 year olds, in 1985 practical assessment was generally limited to post-16 courses and consisted of practical examinations set and marked by the examination boards. The type of practical work used for assessment was limited by the time available for the examination and the nature of the task set. It was essential that the task had clear outcomes that could be recorded by the student in order that the 'remote' external examiner could determine the success or failure of the student. With this approach it is impossible to assess accurately important manipulative and observational skills.

The introduction of GCSE brought with it a new emphasis on practical work and gave the responsibility for its assessment to teachers. Training for this new duty was limited to a few in-service courses and publications from the Department of Education and Science. Many teachers were left with a lack of confidence in the assessment procedures and although the Secondary Examination Council (SEC now renamed the Schools Examination and Assessment Council, SEAC) encouraged teachers to assess practical work on a continuous basis these teachers opted to carry out set-piece examinations. This feeling of insecurity with coursework assessment arose mainly from a concern about treating all students fairly. In the course of 'normal' practical activities students work together in groups and are allowed, or even encouraged, to talk to one another. How then can the teacher prevent students from cheating and how can the teacher assess the contributions made by individuals within the group? In order to overcome these problems the teachers devised practical tests to match the assessment criteria laid down by the GCSE examination boards. Post-16 courses have also moved away from externally set practical examinations and have adopted the same coursework principles as the GCSE examinations. As in the case of GCSE many teachers have prepared their own practical assessments which are carried out at intervals during the course.

The introduction of the National Curriculum Science has led to a further impetus for coursework assessment. The National Curriculum Council (NCC), the Curriculum Council of Wales (CCW), and the Schools Examinations and Assessment

Council (SEAC) have all produced literature encouraging teachers to adopt a continuous approach for the assessment of Attainment Target 1 (Sc1) (the practical component of Science in the National Curriculum). Indeed in the literature produced by SEAC for the recent Key Stage 3 tests for students aged 14 years it was stated that:

> Attainment in Sc1 will be demonstrated in the context of normal classwork throughout the key stage. The scene is set in the lessons which precede or are associated with the investigation. These provide the opportunity for students to raise their own questions to be investigated. (Schools Examination and Assessment Council, 1992)

It would appear that in a large number of schools in South Wales, at least, teachers are continuing to employ practical tests for students for the assessment of Sc1 rather than use a continuous assessment approach (Parkinson, 1992). However, schools that have chosen to use a commercially produced assessment framework called GASP (Graded Assessments in Science Project) have experienced less difficulty in carrying out continuous assessment of practical work. The GASP scheme, which has been under development since 1982, (Davies, 1989) provides teachers with a package for assessing students from the age of 11 through to 16. It provides an assessment framework for both the testing of knowledge and understanding and practical work, through explorations. Students who satisfy certain criteria are awarded a GASP level, the higher levels of which correspond to GCSE grades. Thus, GASP students do not have to sit an examination at 16 years to obtain their science GCSE. The development work was carried out by Science inspectors from London, together with Science educators from King's College, London and the London and East Anglian Examination Board (LEAG). The work of the project was kept in line with the changes that took place in national examinations and was, therefore, able to offer participating teachers in-service training on assessment procedures.

A number of other schemes on the assessment of practical work have been published notable amongst which is the work carried out by a group of researchers based in Scotland for the Standard Grade of the Scottish Certificate in Education. They have produced three resource packs for teachers under the general heading of 'Techniques for the Assessment of Practical Skills' (TAPS) with each pack covering a range of skills.

TAPS 1 (Bryce et al, 1983) was designed for low achievers in science and covered only the basic skills. Students were assessed by a series of short criterion-based exercises which had been stripped of the complexities of a full experiment. TAPS 2 (Bryce et al, 1988) took the research one stage further and looked at the design of instruments to measure the process skill area. The final batch of tested assessment items, TAPS 3 (Bryce et al, 1991), was published after the introduction of Science in the National Curriculum (for England and Wales only). It contains details of assessment items based on investigations that can be used both with the Scottish Standard Grade examination syllabus and Science in the National Curriculum.

Table 2: Skill areas used in the TAPS approach to assessment of practical work

TAPS 1 Basic skill areas	TAPS 2 Process skill areas	TAPS 3 Investigative skill areas
Observational skills	Skills of inference	Generative skills
Recording skills	Selection of procedures	Experimentation skills
Measurement skills		Evaluation skills
Manipulative skills		Recording and reporting skills
Procedural skills		
Following instructions		

In the absence of satisfactory in-service training, teachers have laid great store by this and other published schemes. However, some teachers have had difficulty in making the transition from possessing the resource material to using it in a meaningful way.

Preparing a strategy for practical assessment

Most school experiments involve a number of stages and use a range of scientific apparatus. They may have a tangible end product or it may be the process of carrying out the experiment that is considered important. Whatever

type of experiment is used there are four general areas for consideration when devising a system of practical assessment.

- What skills and processes are to be assessed in any one practical?
- Are these skills and processes to be considered individually or are they to be grouped together?
- What technique can be use to test a process area?
  e.g. How does the teacher assess a student's ability to select relevant information?
- How does the teacher present the examining authorities with evidence of success in practical work when much of this is ephemeral?

Kempa (1986) has identified five broad stages that are associated with experimental work in science:

1. The perception and formulation of a problem to be solved by practical means.
2. The design and planning of an experimental procedure for solving the problem.
3. The setting up of the experiment and its execution.
4. The conduct of measurements and/or observations and their systematic recording.
5. The interpretation and evaluation of the experimental observations and data.

Steps 3 and 4 will be found in all practicals but the other stages will be found less frequently. All science courses containing an element of assessed practical work have similar broad headings. These may be further subdivided to give more detailed criteria suitable for a range of experiments or refined down to very specific criteria for particular situations.

Accurate assessment is more likely to occur when only one or two aspects of a practical are examined by observation of the students' performance. For the most part steps 3 and 4 can only be monitored by teacher observation using detailed checklists for each class. Such lists can be cumbersome and problematic, especially when the teacher is distracted by students' questions and difficulties during the lesson. Steps 1, 2 and 5 may be assessed through written or oral reports and thus present fewer problems to the assessor.

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Improving practical skills

There can be no doubt that students' overall performance at practical work is poor. Some students slavishly follow the written instructions for an activity giving little thought to what is actually happening. There is an underlying attitude that 'if nothing happens you should hit it harder' by doing such things as increasing the amount of acid or heating it up so that it boils out of the boiling tube. It appears that logical thought often goes out of the window when students are carrying out a practical activity. Once learn skills, such as how to light a Bunsen burner or reading a measuring cylinder, are quickly forgotten if the students' attention is not drawn to their mistakes.

Students often work together in groups on their practical tasks. This may be because the teacher sees this as the most appropriate way to conduct the work or, more likely, it will be to do with the lack of resources available (Bentley & Watts, 1992). In general, teachers have been slow in capitalising on this built-in opportunity for group work where individuals can contribute their expertise and members can learn from one another. Nevertheless, it needs to be borne in mind that students need to be given the opportunity for practising experimental skills on a regular basis if they are to become competent practitioners and teachers need to ensure that all members of the group spend some time rehearsing the different procedures.

With the current move towards introducing more supported self-study into science lessons and as the National Curriculum continues to make its impact on science teaching it is likely that the practical group work will become an important arrangement. However, it is unlikely that students will be able to make the transition from illustrative practical work to investigative practical work easily. The two approaches are fundamentally different and it will require careful teaching to ensure that students are able to come to terms with this change in emphasis.

Student involvement in the assessment process

The principle of student self-assessment is not new and has been incorporated into a number of published schemes e.g. Co-ordinated Science, The Suffolk Development (Dobson, 1987) GASP (Davies, 1989). On the simplest level it has involved giving short answers to science problems, particularly those

involving a calculation and a numerical answer. In recent years systems have evolved where students are given criteria on which to judge their performance in a variety of situations. Most common amongst the published schemes are the assessment of communication skills and practical skills. Traditionally, teachers have hidden the assessment criteria from the students, inviting them to read the assessor's mind to find out how they will be judged. Such treatment is obviously unfair and is not conducive to the student making satisfactory progress.

For many teachers it can be a terrible wrench to involve students in the business of marking and recording marks. However, such involvement, carried out on a partnership basis, is likely to improve student motivation and will also assist in raising standards. As with any teaching and assessment system there problems as well as advantages and the following list highlights the key areas for student self-assessment.

Advantages of student self-assessment

- Self-assessment can promote a greater sense of student involvement.
- This can, in itself, improve communication and understanding between teacher and student.
- Motivation can be enhanced.
- The student's self-assessment can provide valuable information for the teacher, about the individual, and also about the effectiveness of the course.
- Self-assessment can help in the diagnosis of strengths and weaknesses and, as a consequence, help the individual to progress to higher levels of attainment.

Disadvantages of student self-assessment

- Self-assessment may not be particularly beneficial if it is carried out only once - it would appear to be more beneficial if it is part of a rolling programme.
- There may be difficulties in accepting the evidence of self-assessment as being objective.
- Individualised self-assessment can be time consuming.
- It may not be considered sufficient for a summative report.
- Students need to learn the skills of self-assessment.

The guidance from the Schools Examination and Assessment Council (SEAC) about assessment of the National Curriculum at Key Stage 3 lists three ways that students can be involved in self-assessment:

> Learning is likely to be more effective if students are aware of the assessment objectives, know what they mean and understand what evidence will be needed to support achievement. Schools are involving students in their own assessment in a variety of ways: providing students with assessment criteria derived from the statements of attainment; asking students to mark each others' work against criteria; or asking students themselves to identify the assessment criteria. (Schools Examination and Assessment Council, 1991)

By assessing their own work students can get instant feedback on their progress. On the other hand they need reassurance that their decisions are correct and that they are making valid judgements of their own ability. Efficient and accurate self-assessment can only take place over a period of time with the student and teacher working in partnership, building up the student's expertise and confidence.

A number of local education authorities (LEAs) in England and Wales have examined the use of student self-assessment for students following the National Curriculum. Appendices A and B show examples of materials used in Dorset LEA (Cowling, 1989). Appendix A shows a card that could be used by a student to check the written report of an individual's practical work. Such a card could be a permanent fixture in a student's practical note book, with the instruction that this should be referred to on the completion of each practical exercise.

SEAC's guidance for teachers about the assessment of scientific investigations (Schools Examinations and Assessment Council, 1992) encourages teachers to adopt student self-assessment and gives guidelines as to the type of information that could be given to students (Appendix B). These prompt sheets and the related assessment form clearly identify the key steps in an investigation for a student and help to ensure that due consideration is given to each of the important steps in solving the problem.

The author's own work with students and examination boards has led to the conclusion that not only was there poor performance in practical work in pre-16 courses but also students following more advanced courses showed significant defects in their laboratory skills. With this in mind the author

set out to produce material that would assist post-16 chemistry students to improve their experimental work. Bearing in mind that investigative work is still not common in advanced courses, the material had to contain a variety of approaches to practical work and attempt to build students' skills as they progressed through the text (Parkinson, 1991a). The work took into account the findings of the APU in planning the experiments, for example clues are given in investigations, immediate feedback is available through the checklist section and the relevant chemistry is outlined for the student in order to avoid problems with the misunderstanding of chemical concepts. Figure 3 outlines the model used in the preparation of material. An example of the detail given for a practical exercise is given in Appendix C. In addition to the students' book it was thought appropriate to prepare information for teachers based on the same principles with examples of practicals that could be used for assessment for the examination boards (Parkinson, 1991b)

Figure 3: A model for student self-assessment of post-16 chemistry practical work

Doing	General information	• reminders about relevant chemistry • key points to note about practical skills
	Specific information	• setting the scene for the practical activity • pointing out any problems with safety
	Guidance with planning	• ideas about how to tackle the problem
	Relevant data	• e.g. physical constants that are not readily available in school data books
Assessing	Checking the techniques	• a review of the processes involved • a check on the skills used
	Obtaining an overall picture of the individual's performance	• allocating marks for tasks achieved • checking against specific criteria

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APPENDIX A

A self assessment sheet for a written report on practical work

Presentation

1. Is your work in the right order?
2. Have you put a title and a date?
3. Are the headings underlined?
4. Is your presentation neat and tidy?
5. Have you clearly marked any diagrams or pictures?
6. Have you checked the punctuation and spelling?

Opinions

Complete this sheet

7. What was the problem you tackled?

_____

_____

8. What were the things that you did?

_____

_____

_____

9. State as clearly as you can what you think you would do differently if you could do the work again to improve it?

_____

_____

_____

(Cowling, 1989)

APPENDIX B

Prompt Sheets

Investigation sheet

Your investigation
On your own
1. Think of a question to test.
2. Write an outline plan for your investigation. Use the planning sheet to help you.
3. Say what you think you will find out and why.

In your group
Decide what plan you are going to follow. Check with your teacher whether you can start your investigation.

Get all the equipment you need and carry out your investigation. You may need to change your plan as you go along, but note any changes that you make.

On your own
Use the report sheet to help you write up your investigation.

Planning sheet

Your plan In planning your investigation, think about these things:
- what you are trying to find out
- what you think will happen
- why you think this will happen using scientific ideas
- what you will measure/observe

Report sheet

Your report In your report, think about including:
- what you were trying to find out
- what you altered
- what you measured or observed
- how you made your investigation a fair test
- what instruments you used to make your measurements
- your results, e.g. in a table
- a graph if suitable
- a description of any pattern
- a conclusion which matched your results
- a comment on how you could have improved your investigation
- an explanation of your results using scientific ideas

Self Assessment

Name: _____ Form: _____

Date: _____ Investigation: _____

In this investigation I have shown that I can:	Tick	Comments
• think of a question to investigate		
• predict what might happen in an investigation		
• give a reason for my prediction		
• decide what to change		
• decide what to measure		
• choose the best measuring instruments		
• make measurements		
• repeat measurements for accuracy		
• describe what a fair test is		
• carry out a fair test		
• do my investigation safely		
• record my results clearly in a table		
• draw and label a bar graph		
• draw and label a line graph		
• understand when to use a line graph		
• get information from my graph		
• describe patterns in my results		
• say what my results mean		
• recognise that my results are only useful if I have done a fair test		
• decide whether other people should believe my results		
• explain my conclusions using scientific ideas		

(Schools Examinations and Assessment Council, 1992)

APPENDIX C

Practical 44

Preparation of 2-chloro-2-methylpropane

Study the passage below and use the relevant information to assist you in planning the preparation of 2-chloro-2-methylpropane.

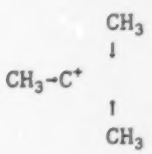
Alcohols undergo nucleophilic substitution reactions to give haloalkanes. For example:

$CH_3OH + HBr \rightarrow CH_3Br + H_2O$

The ease of reaction depends on three factors:

a the stability of the intermediate carbonium ion;
b the strength of the acid;
c the strength of the nucleophile

a Tertiary carbonium ions are more stable than secondary ions. These are in turn more stable than primary ions. The tertiary carbonium ion is explained by the positive inductive effect of the three alkyl groups. This 'pushes' the electrons towards the positive charge on the carbon atom.



Tertiary carbonium ion structure

Tertiary alcohols therefore react most readily with halide nucleophiles and primary alcohols least readily.

$CH_3CH_2OH + HBr \rightleftharpoons CH_3CH_2OH_2^+ + Br^-$

$CH_3CH_2OH_2^+ \rightleftharpoons CH_3CH_2^+ + H_2O$

$CH_3CH_2^+ + Br^- \rightleftharpoons CH_3CH_2Br$

b As can be seen from the mechanism above, for the reaction between ethanol and hydrogen bromide, the first stage of the reaction is the protonation of the hydroxyl oxygen. This occurs most readily with the strongest haloacid, hydroiodic acid, and least readily with the weakest, hydrochloric acid.

c Iodide is the strongest nucleophile and chloride is the weakest.

All this points to the fact that it is difficult to form a chloroalkane from a primary alcohol and hydrochloric acid. For example, to convert butan-1-ol to chlorobutane the alcohol must be refluxed with hydrogen chloride in the presence of a zinc chloride catalyst under anhydrous conditions. In contrast to this, to convert the corresponding tertiary alcohol to the chloroalkane the alcohol is mixed with concentrated hydrochloric acid at room temperature. Both reactions take about 20 minutes to give a reasonable yield of product.

Planning the preparation

As in all preparations there are two major stages:

a the reaction itself, and
b the 'working up' of the reaction mixture to give a purified product.

a The reaction

You are advised to use about 9 cm^3 of 2-methylpropan-2-ol. Write a list of what else you will require for the preparation, being clear about the size and quantity of apparatus and chemicals. Write a plan showing clearly how you will do the experiment.

b The purification

Consider the following:

1. The reaction mixture ends up as two layers. How can these be separated? Which layer contains the 2-chloro-2-methylpropane?

2. The layer containing 2-chloro-2-methylpropane is contaminated with some unreacted acid. How can this be removed?

3. The product is still contaminated with water. How can the product be dried?

4. The product will be contaminated with unreacted starting material and side products of the reaction. How can the final purification be carried out?

Write down a plan for working up the product into a purified form and note any special safety precautions you must take. List the apparatus and chemicals that you require, stating amounts and sizes where appropriate.

When your plan has been approved by your teacher, carry it out.

Wear safety glasses when doing the practical.

Useful information

Compound	Molar mass	Density (gcm^{-3})	Boiling range (°C)
2-methylpropan-2-ol	74.0	0.78	82 - 83
2-chloro-2-methylpropane	92.5	0.84	50 - 51

Checklist

Practical 44: Preparation of 2-chloro-2-methylpropane

- Manipulating apparatus and materials
- Planning and carrying out experiments

A procedure for preparing 2-chloro-2-methylpropane is described below. Your plan may not agree with this completely but the major points must be present.

Requirements

For the preparation

Safety glasses
Measuring cylinder (25 cm^3)
Separating funnel (50 cm^3) with stopper
Retort stand, boss and clamp
Concentrated hydrochloric acid
2-methylpropan-2-ol

For the purification process

Quickfit apparatus for distillation
Thermometer (-10 - 110°C)
Bunsen burner, tripod, gauze and bench mat
Anti-bumping granules
Retort stand, boss and clamp (2 additional sets)
Conical flask (100 cm^3) and stopper
Balance
Saturated sodium hydrogencarbonate solution
Anhydrous sodium sulfate
Spatula

Model procedure

Procedure	Notes
1. Using a measuring cylinder measure out about 9 cm^3 of 2-methylpropan-2-ol and transfer it to a separating funnel. Use the density of the liquid to calculate the mass and hence the number of moles used.	
2. Measure out about 20 cm^3 of concentrated hydrochloric acid into the measuring cylinder.	An excess of acid is used to give a high concentration of H^+ and Cl^- ions. Only by trial and error would you determine the optimum amount. A reasonable guess of between 10 and 30 cm^3 is acceptable.
Add the acid, a little at a time, to the alcohol in the separating funnel. After each addition stopper the funnel and invert it several times to mix the chemicals. Carefully remove the stopper to release the pressure.	Most reactions involve volume and temperature changes and would result in a pressure change in the funnel. It is always wise to add reagents a little at a time and to release the pressure.
3. Leave the mixture to react for about 20 min.	
4. Separate the two layers and discard the lower aqueous layer.	Haloalkanes are insoluble in water (unlike the alcohol, they are less polar). In order to check which is the aqueous layer you could add a few drops of water and see which one gives a homogeneous solution.
5. Add sodium hydrogencarbonate solution, a little at a time, to the non-aqueous layer in the separating funnel. Stopper after each addition and invert the funnel several times. Carefully release the pressure after each addition. Continue adding the hydrogencarbonate until no more carbon dioxide is evolved.	This process neutralises the acid dissolved in the organic layer.

6. Separate the lower aqueous layer from the layer containing the product.	
7. Run the organic layer into a clean, dry conical flask and add 2 or 3 heaped spatulafuls of anhydrous sodium sulfate to dry the product. Leave for 5 - 10 min. or until the liquid is clear.	Sodium sulfate acts slowly as a drying agent but is preferred to other chemicals as there is no chance of it reacting with the product. Alkaline drying agents would react with the haloalkane to re-form the alcohol.
8. Decant the dried organic liquid into a small distillation flask. Add a few anti-bumping granules and distill the liquid, collecting the fraction in the range 47 - 57°C in a dry weighed flask.	Care must be taken not to heat the flask too strongly. The boiling range is low and will be reached quickly. Rapid heating could result in a loss of product.

Self assessment

1. Planning:
   Award marks for each of the eight steps, comparing your plan with the one described above.
   - reasonable amount of acid used? 2
   - separating funnel used as the reacting vessel? 1
   - knew or worked out which layer contained the 2-chloro-2-methylpropane 1
   - worked out how the acid could be removed from the organic layer? 2
   - worked out how to dry the product? 2
   - planned to use distillation as the final purification process? 2
   - wrote down a complete list of apparatus (deduct marks for items omitted)? 4

2. Carrying out the experiment
   - acid added a little at a time to the alcohol? 1
   - separating funnel inverted carefully and pressure released? 2
   - reaction mixture left for at least 20 min.? 1
   - correct layer kept? 1
   - sodium hydrogencarbonate added a little at a time? 1
   - correct layer kept? 1
   - correct drying procedure (see step 7) 2
   - receiver flask weighed prior to the distillation in preparation for calculating the yield of the product? 1
   - set up the distillation apparatus correctly (see practical 39)? 7
   - product collected in the 47 - 53°C boiling point range? (Subtract 1 mark for every °C outside this range) 4
   - yield determined correctly (yield value recorded to no more than 2 significant figures) 2

(Parkinson, 1991a)

A RESPONSE TO ASSESSMENT OF PRACTICAL SKILLS IN SECONDARY SCHOOL SCIENCE COURSES
A Response to John Parkinson's Paper

John Whitsett
La Crosse School District

Dr. John Parkinson makes a very convincing case for the use of laboratory or practical experiences in the secondary science classroom. He contends that, in the United Kingdom, as much as one third of the time is used for lab work with 16 - 18 year olds and even more (half) for 11 - 13 year olds. He notes that the Welsh Joint Education Board recommends a minimum of 20% of the time be devoted to practical work, but it is apparent that the minimum is surpassed in the Welsh educational system.

Science education in the United States also has a stated commitment to "hands-on" laboratory experiences, but commitment is not always followed in practice. Dr. Parkinson cites a 1988 survey conducted by the National Science Foundation that indicates a decrease in high school laboratory work in United States schools. This study is disturbing in that it reports that only 39 percent of high school science courses in the United States contain laboratory work which is a decline of 15 percent in the past decade. The situation may or may not have changed since 1988, but the study does give rise to some discussion related to the importance of laboratory work, current trends that seem to exist, and the importance of the assessment that must take place.

The National Science Teachers Association has recommended that a substantial part of all high school science courses be based in experimental work with students doing science rather than watching or learning about science. The Journal of Chemical Education makes editorial comment in its December 1990 issue:

> In the glory years of science, practicing scientists were among those in the forefront of science education. They provided the sense of what it means to "do" science, that is, that science is a process of knowing and not the collection of facts and theories that result from that process. Somehow science education has slipped from teaching young people science to teaching them about science; from being an active process to being a passive one.

The recommendation of NSTA and the American Chemical Society, as well as other professional organizations, is to include a substantial laboratory

component in all science courses. The Wisconsin Department of Public Instruction notes in its "A Guide to Curriculum Planning in Science":

> Hands on laboratory experience is necessary at all grade levels to meet the intent of this guide. The nature of science education requires that problem solving skills be developed from direct experience. When students are limited to studying written information or watching demonstrations where results are already known, they cannot develop problem solving skills. Similarly, electronic devices, no matter how sophisticated they may become, cannot replace direct experience.

This "hands-on" learning idea has become very popular in this country, especially in the lower grades. The question becomes, when the research suggests that hands-on learning is more effective, why there is resistance to a laboratory program; Dr. Parkinson suggests some reasons:

Safety: There are those who would avoid "hands-on" experiences because of the potential injuries that could result from handling hazardous materials. This does not have to be a significant reason to avoid laboratory work since microscale techniques, modified experimental procedures, and improved equipment are available. Proper training can greatly reduce the hazard and, in fact, the safety training can be a significant educational outcome in its own right.

Computer Simulations: The advent of the computer has provided the capability of eliminating "hands on" experiences, but it is not the same as actually conducting an experiment. Computer simulations provide interesting alternatives but the skill development that typically is part of a laboratory exercise is missing.

Concern over experimenting on animals: The use of live animals must follow strict guidelines for care and treatment, but this does not mean that experimentation must be eliminated. A well planned and executed experiment can provide a very meaningful experience for the young scientist while providing no harm for the animal.

It is more efficient to teach scientific knowledge than experimental process: It is true that "hands-on" learning that is based on problem solving is more time consuming and more difficult to assess, but one must ask which is more important. This question is part of an argument that goes back to the 1950's and before. The writings of Jerome Bruner describe the controversy that

existed relative to process versus content, with Bruner suggesting that process was the better choice. One only needs to look at the way our world is changing to question the wisdom of basing science education on the accumulation of factual knowledge. The amount of information available increases each year and accumulates at an ever increasing rate. The current high school biology text has 50 or more chapters when a mere 20 years ago it typically had less than 30 chapters. The explosion of knowledge suggests that we can't possibly teach all the facts, so we must instead teach students how to use information to solve problems in a real world context. This means that students should learn to identify problems, seek information, form hypotheses, and evaluate their findings. Students who can function effectively in the "information age" by proposing solutions to real world problems have a definite advantage over those who "know the facts" but don't know how to use them. Hands-on laboratory experiences provide this experience. This attitude is reflected in the report from the American Association for the Advancement of Science entitled "Science for All Americans." AAAS suggests that detailed content be sacrificed to allow for more meaningful experiences that provide problem solving activities in a real world context which cross disciplinary lines. Dr. Parkinson makes a good case for the inclusion of laboratory work and goes even farther to distinguish the various types of lab work. It should be noted that lab activities need to include a dimension that provides a "practical" application for the student.

The Science, Technology, and Society (STS) movement suggests that students be placed in situations that require problem solving strategies in the context of integrating science and social studies. The laboratory provides an excellent vehicle for these situations. Again there are excellent parallels between the United States and the United Kingdom in that the Science and Technology In Society (SATIS) program was developed in Great Britain. The British STS movement is at least as well established as it is in this country, if not more so.

The question of how laboratory or practical skills can be assessed is one that is being asked often. Dr. Parkinson suggests several very interesting techniques which seem to mirror some of the efforts in this country. The outcome based education movement in this country has brought with it the necessity to find ways to authentically assess the learning that is taking

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place. Dr. Parkinson correctly notes that if tasks are to be accurately assessed, a clear outcome for the activity must be formulated. The outcomes must reflect what is important to the student and to society. It must be noted that if assessment is going to accurately determine whether an outcome has been attained, the assessment process must become an integral part of the instruction.

The paper suggests, at one point, that students are often placed in groups to work and that this may be the result of lack of resources. This may or may not be the reason, but in light of some of the current trends toward cooperative learning, this might be viewed as a very positive strategy. One of the major outcomes of most U.S. school districts is for students to learn to work effectively in groups. Cooperative learning provides a method of learning science knowledge, practical skills, and also effective interpersonal relations. Group assessments will tend to add validity to this process.

The assessment process needs to reflect the goals and objectives of an educational program. Since it is a stated intent that the practical or laboratory component of a science program represent a substantial part of the instruction, it would follow that assessment should also be made a part of the "hands-on" experience. Dr. Parkinson notes that this seems to be a major deficiency in that the results he reports indicate significant defects in laboratory skills. This is probably one of the directions that science education will need to address in the near future. The type of laboratory work that a student does will certainly affect the attainment of skills. When a laboratory exercise contains activities that are little more than following directions, the physical skills are probably not developed due to lack of motivation, and the thinking skills are certainly missing. Activities that require a student to address a problem, plan a procedure, and then execute the process will provide much better results.

The focus of science education seems to be moving from that of knowledge retention to problem solving and critical thinking. This of course means that the assessment program will also need to change. It is refreshing to see that methods of assessment, as suggested by Dr. Parkinson, include techniques other than the ubiquitous comprehensive multiple choice test. The use of checklists, student self assessments, and writing samples greatly enhance the validity of the assessment process in light of the less concrete problem solving skills.

Dr. Parkinson has noted the significance of the laboratory program and the inherent problems that result in assessing students' ability to master the skills and content. There are striking similarities in the Welsh system of science education and that currently developing in the United States. There is much to be gained from sharing information, especially as more effective methods of assessment develop.

TEACHER EDUCATION

THE REFORM OF BRITISH INITIAL TEACHER EDUCATION AND THE ROLE OF THE MENTOR

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Teacher education in Britain is in a period of major transition if not crisis. During the last ten years it has been transformed from a relatively quiet backwater of higher education into a major site for ideological struggle between the government and other groups with an interest in education. As the debate about the structure, character, and purposes of teacher education has moved more into the public arena, those in higher education who traditionally had responsibility for provision have lost much of their autonomy and the focus of training has increasingly shifted to schools. In the future, it will be schools rather than training institutions that have the prime responsibility for the professional development of the next generation of teachers.

The move to school based training in the UK means that in the future the role of the 'mentor' will take on vital significance for it is mentors, more than any others, who will determine the character and quality of the training students receive. To date however, it has often been quite unclear precisely what it is that mentors must do to facilitate students' professional development. The aims of this paper are therefore twofold. Part A outlines the background to recent debates in the UK that have led to the establishment of school based training - the focus is primarily political. Part B takes a more professional perspective by analysing what the role of the mentor must be if effective school-based teacher education is to be developed.

A. THE MOVE TO SCHOOL-BASED TRAINING

In the autumn 1991, Mr. Kenneth Clarke, the then British Secretary of State of Education, made the following statement to the Conservative Party annual conference:

> Now is the time to press ahead with getting teacher training right. I meet too many young people who don't go into teaching because they are put off by the length of the course. Or they go on a course and then give up because they are put off by the idea of learning too much theory and not enough practice.

> I want to see more students actually getting into a classroom for much more of the time while they train. I want them to learn how to control a noisy class of 30 kids by actually having to do it with the help of an experienced teacher and using their training courses to sort out the problems.

Shortly after the new year he kept his promise and issued a new set of proposals for the reform of initial teacher education in England and Wales. In future he proposed that secondary students training for their one year Post Graduate Certificate of Education should spend 80% of their time in school. Schools should be in the lead taking prime responsibility for the structure and organisation of initial training though the curriculum should be a common one with all students working towards the achievement of a common set of competencies to be specified by the government. Moreover, he proposed that there should be a significant transfer of resources from higher education to schools and the consequent running down of the role of higher education in initial training. Similar proposals were promised for primary postgraduate and undergraduate training later in the year though they have yet to be published.

During the spring of this year (1992) the Secretary of State allowed a brief period of consultation on these radical proposals though in the sort of move that we in British education are now used to, higher education institutions had to submit plans for the revision of courses to meet the new criteria before the consultation period was over. Interestingly however, the opposition to the proposals, and particularly the 80% figure, was so overwhelming, from schools, professional associations as well as those in higher education, that in June this year when the new Government criteria for secondary courses were formally published, (DFE 1992) the figure was reduced to 66%. In the future then, two-thirds of secondary post graduate training is to be spent 'on school premises.' Schools are to have a major role in all aspects of training though the insistence that they should be 'in the lead' has been softened; the new criteria talk of 'partnership.'

However, the challenge to the role of higher education in initial teacher education remains. The government still expects a progressive shift of resources out of higher education to schools though no guidance on figures has been given. Instead the new criteria have established a free market economy. Schools at present receive little or no money for providing school placements for students. In the future however, schools, both individually and

collectively, may bid to universities to provide school placements for a particular price and universities must pay for these out of their existing unit of resource. Whether or not individual universities can in the future resist growing demands from schools for a substantial proportion of their resources will depend on their market position. In areas of the country where there is competition for student teacher training places in schools and where the schools themselves become organised, it will be possible for schools to demand a high price for their school placements. In other areas, universities may be in a position to 'play the field' and maintain a greater proportion of the resources available. During the next five years we could therefore see a significant variation open up in the nature of training. All trainees will have to work on the list of practical school based competencies published by the government. But the degree to which individual universities will have the resources left to supplement that by providing appropriate courses of higher education will depend on the vagaries of their local market position.

The Policy Debate

So radical changes are afoot in initial teacher education in Britain with schools rather than institutions of higher education increasingly becoming the focus and locus of training. But why has this come about in Britain? Why has the government taken the view that the way to improve the quality of initial teacher education is to place greater emphasis on practical training in school. Of course, the debate about the appropriate character of practical training is nothing new. Debates over the proper character of practical training for student teachers have a long history in Britain stretching back to the 1830s when the first training institutions were built with model classrooms and galleries for observers (Wragg 1990). In more recent times the the McNair report of 1944 challenged the orthodoxy of the day by suggesting that schools should have equal responsibility with teacher education institutions for the practical training of students. But the McNair proposals fell on deaf ears. Why should such proposals be acceptable now? In recent years it is possible to trace three distinct voices in the debate on the future of initial teacher education - influential sections of the education profession, various 'New Right' political groups and the government itself through its administrative apparatus [the Department of Education and

Science (DES), recently renamed the Department for Education (DFE) and Her Majesty's Inspectorate (HMI)]. Although there are important differences between each of these groups in their views on initial teacher education, they have all concluded that the role of schools in the training process must be strengthened.

Over the last ten years many sections of the teaching profession have argued the case for reform. Here there have been a number of players - the training institutions, philosophers of education debating the nature of professional knowledge, the Council for National Academic Awards (CNAA), and the teacher unions. Throughout the 1970s and early 1980s a few well publicised training institutions began to redesign their courses to place a greater emphasis on practical training. Their primary reasons were to respond to continued demand from students and from teachers that the 'theory' taught in training institutions should be more directly relevant to schools than it had in the past. At the same time, British philosophers of education - Dearden, Hirst, Peters and Wilson - engaged in an academic debate about what might constitute the 'best' form of professional training. Their debate focused on the character of professional knowledge and particularly the relationship between 'theory and practice.' They increasingly came to the conclusion that the notion of a division between the two was unhelpful and that closer forms of collaboration were both appropriate and necessary for effective training.

Other professional groups were also influential in this move - the CNAA as well as all the major teacher unions, throughout the 1980s, increasingly advocated a greater role for practical work in teacher training and for the development of new forms of partnership between training institutions and schools. By the early 1980s in Britain then the language of partnership had become the dominant orthodoxy in the profession's debate on teacher education, if not in practice. Establishing partnership in all but a minority of courses was rather slower to achieve and was, it might be suggested, in the end dependent on overt political intervention.

And the voice most responsible for stimulating that political intervention has been the 'New Right.' From the late 1960s onwards in Britain, New Right commentators, loosely aligned around 'neo-liberal' free market philosophies, have mounted a sustained attack on many aspects of contemporary educational policy. In recent years that attack has increasingly become

focused on initial teacher education. The best known of these groups and certainly the most influential has been the Hillgate Group (1989). Their views on teacher education are trenchant. For example, they accuse most courses of being intellectual 'feeble and biased' and being overly concerned with topics such as race, sex, and class and even 'anti-imperialist' education. According to the Hillgate Group, these 'preoccupations' appear "designed to stir up disaffection, to preach a spurious gospel of 'equality' and to subvert the entire traditional curriculum" (Hillgate 1989:5). Their solution is the entire abolition of formalised initial teacher education and a move to an apprenticeship model. Similar lines of argument have been put forward in a succession of widely publicised pamphlets written by others on the New Right. These pamphlets have amounted to a carefully sustained attack on teacher training institutions and they have received widespread support in the popular press.

The pressures of the New Right might have been easier to resist if government agencies themselves had not taken a critical stance on conventional initial training. During the 1980s both the DES and HMI issued a vast array of research findings (HMI 1988a, HMI 1989a, HMI 1989b), inspection reports and consultation documents (DES 1983, DES 1988, DES 1989a, HMI 1983, HMI 1987, HMI 1988b), and directives (DES 1984 and DES 1989b) many of them implicitly and explicitly critical of existing approaches to practical preparation. Also significant has been the piloting of two new school based training routes (the Articled and Licensed Teacher Schemes) specifically designed to attract new groups of trainees into the profession.

What we have in Britain at present then is an interesting coming together of different groups, all of them arguing for a greater role for schools in the training process. Pushed on by the New Right critics, successive Secretaries of State for Education have, throughout the last ten years, begun to insist on strengthening the role of practical training in teacher education. Current proposals are only an extension and development of an already well established trend (DES 1984, DES 1989b). But, although government interventions have perhaps been driven by pressure groups fundamentally hostile to those in teacher training, many teacher trainers have found themselves broadly in sympathy with the general thrust of government policy and the reforms would have been harder to achieve without that support.

At least there was support until now. The latest radical intervention seems to me to represent a direct attack on the role of higher education which few schools and even less teacher educators would support. Nevertheless, it seems that in Britain, school-based training of a potentially radical kind is here to stay.

B. THE ROLE OF THE MENTOR IN SCHOOL BASED TRAINING

One consequence of the move to school based forms of training is the growing recognition of the importance of the role of the 'mentor' in the training process. In the future it is likely to be teachers, acting as mentors, who will take lead responsibility for facilitating the professional development of trainees. It is they, more than anyone else, who are likely to be responsible for the quality of training that students receive. It is they who will influence the nature of professionalism in the next generation of teachers.

This recognition of the importance of the mentor in the future shape of teacher education has meant that the work of mentors has rapidly become the focus of attention within the profession. Large numbers of in-service 'mentor training courses' have been established, many of them award bearing, though to date most of them are based on only the most rudimentary analysis of what the role of the mentor must be if effective training is to be established within a school based course. In the remainder of this paper I want to draw on some of the preliminary work from research currently being undertaken in Swansea in which we have begun to explore what the role of the mentor must be if high quality training is to be maintained in the future (Maynard and Furlong 1992). But before considering the role of the mentor directly, it is necessary to ask a prior question - why, in principle, should school teachers themselves be part of the training process? What is the professional rather than the political rationale for the mentor's contribution to professional development?

In order to try and answer that question, we will briefly return to an earlier project undertaken at Cambridge which involved an investigation of four school-based training courses (Furlong et al 1988). In that analysis we distinguished between four different levels or dimensions of training which we argued went on in all forms of teacher training course. These levels were as follows:

Levels of Professional Training

Level (a) Direct practice
Practical training through direct experience in schools and classrooms.

Level (b) Indirect practice
"Detached" training in practical matters usually conducted in classes or workshops within training institutions.

Level (c) Practical principles
Critical study of the principles of study and their use.

Level (d) Disciplinary theory
Critical study of practice and its principles in the light of fundamental theory and research.

(Furlong et al 1988:132)

Our argument was that professional training demands that students in their courses must be exposed to all of these different dimensions of professional knowledge. Moreover, courses, we suggested, need to establish ways of working that help students integrate these different forms of professional knowledge. Students, we argued, need to be systematically prepared in practical classroom knowledge - they need to be prepared at level (a) - it is a distinctive form of professional knowledge and training can not be left to chance. But we suggested that it is only teachers who have access to that level of knowledge - it is only they who know about particular children working on a particular curriculum in a particular school. Lecturers, we suggested, can visit schools and give generalised advice but by definition that will always be generalised. We also argued that although individual teachers might be in a position to prepare students at levels (b), (c) and (d), the nature of their job meant that their greatest strength was at level (a). However, lecturers, because of their breadth of experience and because of their involvement in research, had access to other forms of professional knowledge. Training, we argued, must therefore be a partnership between training institutions and schools.

Since publication, this analysis has been criticised for its notion of levels and certainly given that the term does carry overtones of a hierarchy then it would seem inappropriate - different dimensions of training might have been a more appropriate term. McIntyre (1990), in a lengthy critique, has also suggested that there is an implicit hierarchy in more than the language - he

suggests that the model prioritises academic knowledge at level (d) implying that that is the only route to professional rigour. McIntyre agrees that students need access to different forms of professional knowledge and that the practical knowledge of teachers must be a central part of that training process. However, he suggests that different forms of professional knowledge should all be used to interrogate each other. Practical classroom knowledge - the province of teachers - should be used to interrogate more theoretically based knowledge and visa versa.

The debate continues but where many of those writing on initial teacher education would now agree is that students need systematic preparation in that practical classroom knowledge and by definition that aspect of training (and I would reassert that it is only one aspect of training) can only be provided by teachers working in their own classrooms and schools. We must move from the notion of supervision in school - where teachers are supervising students in the application of training acquired elsewhere - to the notion of mentoring - which is an active process - where teachers themselves as practitioners have an active role in the training process.

Since the publication of that earlier study, school-based training has become much more widely practised and as indicated above, it will soon become the norm. Even so, it seems questionable whether the consequent and substantial difficulties experienced by students in gaining access to teachers' knowledge have yet been fully considered in many teacher education courses let alone by the government itself. If it is to be effective, the work of the mentor needs much more careful analysis than it has had to date.

In starting to think more deeply about the structuring of school-based experience and the role of the mentor, it would seem that a necessary starting point is with the students' perspective. Students' learning needs should be the foundation on which the planning of practical training should rest. To ignore the students' needs is equivalent to the student-teacher planning a lesson without any thought of the age, abilities, or interests of the children for whom the lesson is intended.

Students' Learning Needs.

But what do we know of the needs of student teachers? An examination of research literature on the process of learning to teach confirms the common sense observation that students typically go through a number of distinct

stages of development each with its own focal concerns. These concerns can usefully be grouped under the following headings: early idealism; survival; recognising difficulties; hitting the plateau; and moving on.

Early idealism.

Research into the pre-teaching concerns of students has found that they are often idealistic in their feelings towards their students, identifying realistically with pupils but unsympathetic or even hostile to the class teacher (Fuller and Bown 1975). Moreover, they often seem to hold a clear image of the sort of teacher they want to be. They are terrified of ending up like that 'miserable old cynic in the corner of the staff room!'

Survival.

Once students embark on their teaching experience however, their idealism often fades in the face of the realities of classroom life and they frequently become obsessed with their own survival. It is therefore not surprising that class control and management, 'fitting in' and establishing themselves as a 'teacher' often become major issues for them.

At this stage of training, students frequently refer to the problem of not being able to 'see.' Students-teachers in our own research have used phrases such as "it's all a blur," "I can't seem to focus," and "feeling my way." In the early stages of school experience, time is often given for students to observe classroom practice but as Calderhead (1988a) confirms, this is often wasted time - they cannot make sense of the noise and movement around them; they do not understand the significance of the teacher's actions - they simply do no know what it is they are supposed to be looking for. It is no wonder that at this stage students often express the need of 'quick fixes' and 'hints and tips'(Eisenhart et al 1991).

Recognising difficulties.

At the next stage, students become sensitive to the varied demands made on them and are keen to give an impressive performance. With confidence shaken, the issue of assessment often starts to predominate. As college tutors are well aware, even at quite early stages, students constantly make the plaintive cries of "Am I doing well?" and "Will I pass?" This is despite the

fact that an overconcern with assessment means that they have missed the main point of the experience. In this phase, students also begin to focus on the issue of teaching methods and materials - referring frequently to classroom constraints or lack of resources.

Hitting the plateau.

After the first few weeks when basic management and control procedures have been established, students are liable to 'hit the plateau' - at last they have found a way of teaching that seems to work and they are going to stick to it! However, they frequently find great difficulty, as Feiman Nemser and Buchmann (1987) explain, in shifting the focus from themselves to others, or from the subjects they are teaching to the issue of what the pupils need to learn. There often is, as Fieman Nemser and Buchmann point out, a vast gulf that exists between "going through the motions of teaching ... and connecting these activities to what pupils should be learning over time" (p.257).

Moving on.

Students may eventually go on to experiment and/or show concern for pupils' learning but without positive intervention. Calderhead (1987) maintains that their level of reflection will be shallow and ineffective in promoting professional learning. (For sequences of concerns see Fuller and Bown 1975; Calderhead 1984,1987).

A final phase of development has been identified as occurring after approximately seven years - that of 'teacher burn-out' (Calderhead 1984).

Models of Mentoring

If these, then, are some of the stages involved in learning to teach, what can that tell us about the role of the mentor? What sort of strategies and approaches should mentors be using in supporting students through these different stages? Unfortunately, if we examine the literature that already exists on the role of the mentor most of it is extremely uni-dimensional reflecting the fact that much of the debate to date on the value of school-based training has been ideologically inspired (Furlong 1992); it has perhaps inevitably been caught up in the largely political debate outlined earlier. From looking at current literature, it is possible to identify three

rather distinct models of mentoring: the apprenticeship model; the competency model; and the reflective practitioner model. As I will argue, each of them is in itself partial and inadequate, perhaps only appropriate at a particular stage of a student's development. However, taken together, they may contribute to a view of mentoring that responds to the changing needs of students.

The apprenticeship model and 'learning to see.'

The first model apparent in the literature is what might be called an apprenticeship model. This is an approach to learning to teach that is strongly advocated by New Right critics - O'Hear (1988) and the Hillgate Group (1989). In one of their more coherent passages, the Hillgate group argue that there is a long tradition going back to Aristotle that some skills, including many that are difficult, complex, and of high moral and cultural value are best learned "by the emulation of experienced practitioners and by supervised practice under guidance" (p9). In the case of such skills, apprenticeship, they suggest, should take precedence over instruction.

Of course, the Hillgate group argue that their apprenticeship model is all that is necessary in learning to teach - all you need to do is to work alongside an experienced practitioner. But before we fall into the trap of dismissing their arguments out of hand, we need to recognise the truth in their observation, for it would seem that the work of a mentor does indeed contain elements of this apprenticeship model. Students need first-hand experience of real pupils, teaching situations, classroom strategies, and subject-matter. In the early stages of their training the purpose of that practical experience is to allow them to start to form concepts, schemas, or scripts of the process of teaching. But in order to begin to 'see,' students need an interpreter. They need to work alongside a mentor who can explain the significance of what is happening in the classroom. As we have argued above, students also need to sense and fit into established routines. They, therefore, also need to be able to model themselves on someone. Such a model can also act as a guide, articulating and presenting 'recipes' that will work.

It is often advocated that in the first weeks of teaching experience students should work with individuals or small groups of pupils. The reason this is thought to be useful is that it is believed to reduce the complexity of the teaching process. However, as students are mainly concerned with

'survival' issues at this stage, small group work of this sort may only partially meet their needs. Small group work, can for example, help them focus on the issue of differentiation. It will not however, address their concerns with classroom management and control. Moreover, if it detaches them from the main business of the classroom, it reduces the opportunity for the mentor to act as a model and interpreter. At this early stage, a more appropriate strategy is for the student to work alongside a mentor, taking responsibility for a small part of the whole teaching process.

If we substitute the term 'collaborative teaching' for apprenticeship - a term coined by Burn (1992) describing her work as a mentor in the Oxford internship scheme - then we can perhaps start to see the power of this aspect of the mentor's role in the early stages of learning to teach. For example, Burn (1992) lists the following as some of the advantages of collaborative teaching:

> learning to plan lessons carefully through being involved in joint planning with an experienced teacher, finding out what the teacher takes account of and identifying with the planning and its consequences;
>
> learning certain skills of classroom teaching through having responsibility for a specified component of the lessons, while identifying with the whole lesson and recognising the relationships of the part to the whole;
>
> gaining access to the teacher's craft knowledge through observation of the teacher's actions, informed by a thorough knowledge of the planning and probably through discussion of the lesson afterwards, with a heightened awareness of having joint responsibility for the lesson
> (p 154)

This is precisely the sort of training that students need in the early stages of school experience when they are 'learning to see.'

The competency model - systematic training.

While the Hillgate group and their friends have been urging that learning to teach can best be understood as a form of apprenticeship, others have been advocating a competency based approach. For those in this camp learning to teach involves practical training on a list of pre-defined competences. The mentor takes on the role of a systematic trainer, observing the student - perhaps with a pre-defined observation schedule - and providing

feedback. They are, in effect, coaching the student on a list of agreed behaviours that are, at least in part, specified by others.

Systematic training in the UK has a long history, becoming particularly popular in the 1970s with the development of interaction analysis, micro teaching and some interest in American Competency Based Teacher Education. We have of late seen the approach re-emerge in official directives (DES 1989b, DFE 1992). In the future, all secondary students will work on a common list of competences defined by the Government.

What is right about the competency approach is that after an initial period of collaborative teaching, it is perfectly correct that students will benefit from an explicit programme of training following a routine of observation and feedback. In this second stage of learning to teach, students must be given control of the teaching process. Learning at this stage necessitates students taking responsibility; they have to learn by actually doing the job of teaching. While still adopting some of the class teachers' ready made routines, they need to be helped progressively to form and implement some of their own while continually developing and modifying their own personal concepts and schemas. In order to help this process, the mentor therefore needs, at this stage of the student's development, to take an active role, acting as a mirror or working as a coach.

There are many models within the literature of how mentors can best approach systematic training (see Smyth (1991) for an up-to-date critical review). Current British regulations are prioritising one of these - the competency model. It may well be that this aspect of the mentor's work is facilitated if they utilise a predefined list of competences, though I would re-emphasise that it is not the only approach. However, I would suggest that if the phase of collaborative teaching has been gone through it is perfectly possible, and educationally advantageous, to involve the student in discussion of which competences they want their mentor to focus on.

One common problem that students face is that once they have taken control, once they have established routines that work for them, they can stop learning - they can hit a plateau. At this point, the mentor therefore not only needs to 'remove the structure' of support but also to encourage the student to observe and experiment with different teaching styles and strategies. Just because students are ready for more explicit training in

relation to their own performance does not mean that the benefits of modelling through observation and collaborative teaching are over. The foundations for an extended repertoire continue to be best laid by working alongside and observing experienced teachers. In other words, it is not appropriate to think of these phases of mentoring as discrete entities. Rather, they are progressive.

The reflective model - from teaching to learning

The final approach to mentoring currently widely advocated is the reflective practitioner model. Some would argue that calling it a model is too generous - slogan might be more appropriate, for as Calderhead (1989) has noted, there are great difficulties in defining what reflective teaching actually is and even more difficulty in suggesting what activities by mentors might promote its development. Indeed, most courses, it would seem, try to promote the reflective practitioner by means other than involving mentors - by the way they structure the course with concurrent periods of school and college activity so that the lecturers can encourage students to reflect - or by particular assignments or activities - keeping journals or undertaking small research projects. All of these are valuable, but I would suggest that once students have, with systematic support from their mentor, achieved basic classroom competence, ways have to be found of introducing a critical element into the mentoring process itself. To put it more directly, if learning to teach is the heart of training, then reflection on teaching, however it is defined, must be part of that learning process.

In this final stage of practical preparation in teaching, students need to be encouraged to switch from a focus on their own teaching performance to a focus on the children's learning and how they can make it more effective. But to achieve this switch means more than the student simply extending his or her repertoire of routines. To focus on children's learning demands that students move beyond routines and rituals; they need to develop a deeper understanding of the learning process; thinking through different ways of teaching and developing their own justifications and practical principles from their work.

Whilst it is common for mentors to withdraw and let the student get on alone once they have achieved basic competence, it would seem to me that if mentors are to facilitate this shift of focus they must continue to take an

active role. However, I would argue that students are unlikely to be ready for this form of reflection on their own practice until they have gained some mastery of their teaching skills; they need to be ready to shift their focus from their own teaching to the pupils' learning and that cannot come until they have gained some confidence in their own teaching.

Supporting students in this more reflective process necessarily demands a shift in the role of the mentor. To facilitate this process, mentors need to be able to move from being a model and instructor to being a co-enquirer. Those other aspects of their role may continue but in promoting critical reflection a more equal and open relationship is essential. As was implied earlier, thinking critically about teaching and learning demands open mindedness and involves confronting beliefs and values. This is difficult and challenging work but it is an essential element in what a true mentor must be.

From a simple examination of students' learning needs at different stages of development it is then possible to propose a fuller and more complete view of the role of the mentor. In the early stages of school experience, when students are still 'learning to see,' mentors need to act as collaborative teachers, working alongside students, acting as interpreters, and models. But, once students have moved beyond that initial stage and started to take increased responsibility for the teaching process itself, mentors need to extend their role. While continuing some periods of collaborative teaching they also need to develop a more systematic approach to training, acting as instructors by establishing routines of observation and feed-back on agreed competences. Finally, once students have achieved basic competence, the role of the mentor needs to develop further. While other aspects of the role may continue, mentors in this final stage of development, need to establish themselves as co-enquirers with the aim of promoting critical reflection on teaching and learning by the student.

Effective mentoring is therefore a difficult and demanding task and teachers performing the role will need the time and in-service support appropriate to the increased responsibilities being placed on them by the development of school-based training. But in our enthusiasm for analysing the role of the mentor we should not lose sight of the point made earlier. The work of mentors, however effectively undertaken, can by definition, be only one aspect of professional preparation. Student teachers continue to need

preparation in other dimensions of professionality. They need a broad understanding of different styles of practice; an understanding of the practical principles underlying practice; and an appreciation of the moral, political, and theoretical issues underlying educational practice. All of these other dimensions of professional knowledge are still best provided by those in higher education. Effective mentoring is a way of complementing and extending forms of training traditionally made available through higher education institutions. The question in the British context is whether, in the future, those institutions of higher education will still have resources sufficient to provide that support.

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CLINICAL PROFESSORS AND CLASSROOM TEACHERS AS CO-MENTORS
A Response to John Furlong's Paper

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In Professor Furlong's paper, the word training appears 64 times, not to mention the appearance of the words teacher trainers and professional development of trainees. The notion of teachers being "trained" is particularly worrisome to me. Certainly, we understand that in the United States there are those who attend "Medical School" and others who are enrolled in "Law School." These latter students are said to be externs, interns, clerks; it is by no happenschance that those preparing to serve as educators (and nurses) are said to be "in training." This is germane. Are our student teachers apprentices or reflective teachers? I prefer to think of them as the latter and I champion the cause that we step aside from the notion that they are trained; training implies that always for stimulus X there is a response, Y. All of us with our many years of experience attest to the fact that there have been no two students alike and no two classes alike. Thereby, no amount of "training" could cover the range of possibilities that include the myriad of responses an educator makes during the delivery of instructional services.

It may prove to be true that some training is needed during the induction period when a newly hired teacher is acclimating to the mores of the new school. Each school has a unique protocol; a mentor for the new teacher during the first year would be valuable in the adjustment period. Such protocol information, however, is operational knowledge not pedagogical. In the opening, Professor Furlong writes:

> In the future it will be the schools rather than the training institutions that have the primary responsibility for the professional development of the next generation of teachers.
> ...
> Mentors will take on vital significance for it is mentors...who will determine the character and quality of the training students receive. (p.1)

Given all that we know about current practices in schools, by teachers with years of experience, this notion is worrisome. For reasons of the national curriculum, for reasons of the very real possibility of the

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imposition of the national test, for reasons of the willingness of millions of teachers in the United Kingdom and in the United States to tacitly accept mandates and statutes that disempower them and disenfranchise them, I am worried. I am not comfortable with the notion that student teachers could, in fact, be subjected to the influence of a mentor whose service has become text-and-test bound.

I am only comfortable with the notion of student teachers being matched with professional educators who serve as co-enquirers and with whom investigation is actualized and critical reflection is a daily activity (p.17). The student teaching experience needs to focus on pedagogical decisions, instructional services, and the connection between school and community. Kenneth Zeichner (1992) and John Goodlad (1990) argue that, traditionally, student teachers learn much about teaching in a singular classroom but that placements with single teachers do not allow them to experience the full range of responsibilities they will have to assume as professionals.

Professor Furlong calls our attention to statements made by Kenneth Clark as Education Secretary. Mr. Clark notes that people do not enter teaching because our program is too long and because we offer too much theory and not enough practice (p.2). It is incumbent upon us to review the marks of a profession.

In brief, a profession is characterized by these common characteristics (Howsam, 1976; Lieberman, 1956):

entry is controlled,
there is an esoteric language,
the period of preparation is lengthy,
and the members police their own ranks.

Given these denominators, we can challenge Mr. Clark and his supporters. Our preservice teachers need much time to allow for the acquisition of and reflection on pedagogical knowledge. We do know that having been a consumer of "education" for 16 years does not prepare a person to serve as an "experience creator" and that theory must be challenged and debated in order for it to be translatable into practice. We know, also, that many have become certified through alternative routes and that many others have served in schools long enough to have lost their passions for designing and delivering engaging

learning experiences for their students; these teachers are not the ones to whom we would want our students teachers assigned. Mr. Clark, then, needs to realize that those who would step aside from our professional preparation programs because of their length or theoretical engagement are best advised to enter a vocational enterprise. As Professor Furlong describes, "...thinking critically about teaching and learning demands open mindedness and involves confronting beliefs and values" (p.17).

In my own dissertation study (Richardson, 1985), the deans of the major teacher producing institutions in the United States recommended increased emphasis on future studies and increased opportunities to teach in multiple kinds of educational settings and learning environments. In the study, 97 percent of the deans recommended that the field experience include the opportunity to use differential instructional strategies (p.70). Teaching has not been recognized as a profession; if educators are to advance the status of teaching, we must ground our service in purpose, set our sights on the needs of the world population in the next century, and deliberately design instruction to meet the needs of individual students. For the preservice teacher, many and varied field experiences are needed; a singular, school-based mentor may not be able to provide the opportunities the student teacher needs.

Professor Furlong documents that student teachers "need a broad understanding of different styles of practice; an understanding of the practical principles underlying practice; and an appreciation of the moral, political, and theoretical issues underlying educational practice" (p.18). I suggest that such growth is less likely to happen under the guidance of a school-based mentor. I suggest that such growth is likely when the university-based teacher educator is connected with the practicum student and the classroom teachers.

The Holmes Group in 1986 offered several proposals designed to improve teacher education and to augment the construction of a genuine profession of teaching. The group seeks to make teacher education more intellectually sound and to make prospective teachers thoughtful students of teaching. This proposal suggests that theory must be studied and translated into actual practice; this will not be entirely possible if the student teacher is assigned to a mentor whose theoretical base is narrow or whose repertoire of

instructional strategies is limited to "classical" teaching. The group also seeks to connect institutions of higher and professional education with schools and to build demonstration sites where new career opportunities can be developed and refined. The group seeks to make schools better places for teachers to work and for practicum students to learn by altering the professional roles and responsibilities of teachers. These latter proposals suggest that "business as usual" is not in the best interests of educational reform; student teachers need to be placed in settings wherein they are encouraged to use a variety of strategies and approaches - not simply one person's notion of the "tried and true."

Figure 1.----------

TOMORROW'S TEACHERS:
THE ESSENTIAL ARGUMENTS OF THE HOLMES GROUP REPORT
1986

THE HOLMES GROUP IS DEDICATED NOT JUST TO THE IMPROVEMENT OF TEACHER EDUCATION BUT TO THE CONSTRUCTION OF A GENUINE PROFESSION OF TEACHING. BRIEFLY, THE GROUP'S FIVE GOALS OR PROPOSALS FOR ACTION ARE:

1. TO MAKE THE EDUCATION OF TEACHERS MORE INTELLECTUALLY SOUND; TO MAKE PROSPECTIVE TEACHERS THOUGHTFUL STUDENTS OF TEACHING AND ITS IMPROVEMENTS (SHIFT PROFESSIONAL ACADEMIC AND CLINICAL STUDIES FROM THE UNDERGRADUATE TO THE GRADUATE LEVEL).

2. TO RECOGNIZE DIFFERENCES IN TEACHERS' KNOWLEDGE, SKILL, AND COMMITMENT, AND IN THEIR EDUCATION, CERTIFICATION, WORK, AND CAREER OPPORTUNITIES BY DISTINGUISHING AMONG NOVICES, COMPETENT PROFESSIONAL TEACHERS, AND HIGH-LEVEL PROFESSIONAL LEADERS.

3. TO CREATE STANDARDS OF ENTRY TO THE PROFESSION--EXAMINATIONS AND EDUCATIONAL REQUIREMENTS--THAT ARE PROFESSIONALLY RELEVANT AND INTELLECTUALLY DEFENSIBLE.

4. TO CONNECT INSTITUTIONS OF HIGHER AND PROFESSIONAL EDUCATION WITH SCHOOLS IN ORDER TO MAKE BETTER USE OF EXPERT TEACHERS IN THE PROFESSIONAL EDUCATION AND INDUCTION OF OTHER TEACHERS AND IN RESEARCH ON TEACHING, AND TO BUILD DEMONSTRATION SITES WHERE NEW CAREER OPPORTUNITIES, WORKING CONDITIONS, AND ADMINISTRATIVE ARRANGEMENTS CAN BE DEVELOPED AND REFINED.

5. TO MAKE SCHOOLS BETTER PLACES FOR TEACHERS TO WORK AND FOR STUDENTS TO LEARN BY ALTERING THE PROFESSIONAL ROLES AND RESPONSIBILITIES OF TEACHERS.

The Holmes Group proposed the creation of Professional Development Schools (PDS). In the PDS we would have Clinical Professors and Cooperating (classroom) Teachers working closely with our practicum students. Those teachers approved to serve with the practicum students in the PDS would be offered faculty affiliation in the college or department of education. In the prevalent manner of selection, cooperating teachers are screened minimally; some teachers seek a student teacher placement for reasons less than noble. This is my reservation about the mentorship; if our preservice teachers are placed with traditionalist mentors, variational practice and critical reflection will be restricted. My worries in this regard are not as grand with respect to elementary school placements as they are with respect to placements at secondary schools.

Edward Meade (1991) recommends: "...the college faculty members should serve as professional peers to selected classroom teachers who would function as clinical supervisors."

Should our students be paired with mentors who are text-and-test bound, who operate restrictively within the national curriculum and not responsively to the cross-curricular themes, skills, and dimensions, then our student teachers will emerge "trained" in a strategy and unprepared to serve inclusively our students who present themselves to us with specific and unique learning styles and variational successes in prior educational experiences. The professor must serve as the ultimate resource and the guider of reflection; the classroom teacher must serve as the ultimate model and invitational team leader. So stated, I agree with Professor Furlong: "We must move from the notion of supervision in school...to the notion of mentoring" (p.9). The student teacher needs at least two mentors - the classroom teacher and the professor; the co-enquirers include all those contributing to the professional development of the preservice teacher. Fortunately, in our program at The University of Wisconsin at LaCrosse, our students accrue 100 hours of clinical experiences prior to student teaching; given these prior opportunities, our practicum students are likely to be ready to engage in reflection during student teaching.

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STANDARDS FOR QUALITY CLASSROOM PRACTICE: QUALITY MANAGEMENT OF TEACHER BEHAVIOR USING ACCELERATED LEARNING CRITERIA

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Attention to the needs for increases in learning and more productive schooling are perennial topics of many discussions in both the popular press and professonal publications in the United States. People are generally concerned about the effectiveness of schools, and many changes have been made in attempting to create significant improvements. Some of these changes have dealt with issues that have little impact on the classroom teaching, such as scheduling, grouping, bussing, curriculum reorganization, etc. The purpose of this paper is to focus on the impact of pedagogy, the teaching act, which in the United States we call "instruction." We recognize that Europeans dislike the word "instruction" because in Europe the word has dictatorial and authoritarian implications. However, in the United States, many universities have departments of "curriculum and instruction" and the word "instruction" is used to represent the distinction of teaching methods or techniques in contrast to the curricular content. If you like, the word "input" may be substituted for "instruction," including self-input for selfinstruction. The major thesis of this paper is that the pedagogical act, the instruction or input process of the teacher, has a major effect on the acquisition and retention of content, and that the current knowledge level of effective practice is quite high.

All methods are really variations of one method, according to Duffy (1982). Although many activities may take place during a class period, the acquisition of material takes place during some form of presentation whether it is done by a teacher or self-learning presentation by the student. Instruction is therefore some form of input to the student, whether by the teacher, a machine, a book, or a student companion. Improvements in learning and teaching are forthcoming through changes in the input and it is important that input be given.

Rosenthal and Jacobson's landmark 1968 book, Pygmalion in the Classroom, documented changes in teachers' input to students as a result of suggested

expectations. The results showed that students lived up or down to teacher expectations (locker numbers were substituted for IQ scores in order to mislead teachers regarding the mental abilities of the students). Teacher expectation and behavior in regard to students has been shown to make a difference in many replicated studies in the learning outcomes of those students. At Harvard, Rosenthal has collected hundreds of studies for meta-analysis of expectancy effects with student-teacher interaction, with classroom climate and input ranking the highest.

Accelerated Learning and Teaching is the systematically orchestrated pedagogy which synthesizes most effectively the best elements of what is known about instruction. Based on the work of the Bulgarian psychiatrist and researcher, Georgi Lozanov, whose adult students were learning several hundred new foreign language words a day. He coined the term "suggestopedia" (1981) for applying the science of suggestion to the classroom. Research was completed at Iowa State University by Dr. Donald Schuster (1978) to test the effectiveness of the method with school children in American public schools. In one Iowa High School, a year of German was learned before Christmas. Overall, encouraging effects were shown with remedial reading students by Prichard and Taylor (1980), whose students learned at a rate of two to four times faster than normal students. More than eighteen years of replication and research has created much documentation and sources for teachers and researchers, including a review by the National Research Council which found that "Suggestive Accelerative Learning and Teaching Techniques (SALT), integrate well-known instructional, motivational, and practice elements in a manner that is generally not present in most scientific studies." (Palmer, 1990, 206).

SALT can be briefly defined as classically conditioning the student to optimum levels of automomic nervous system brain biochemistry through a combination of security and relaxed enjoyment, a pleasant and appealing room arrangement and atmosphere, the use of explicit and implicit positive verbal and visual suggestion, and energetic presentation of material by the teacher followed by a passive review within or at twenty-four hours, and activation of the acquired material through application in a fun game activity. Eyes closed imagery of the material, physical relaxation, presentation to music, and classroom games are prominent features of this pedagogy. Content is prepared

on specially prepared posters which address the whole brain and error correction is done without embarrassing the student by reteaching to the entire class. Special attention is given to the teacher's speaking characteristics, with voice intonation and variety, consistent positive speaking, and presenting/reading to specially selected music (baroque, classical and romantic). Curriculum content is often integrated into a story line in a script and read to music several times (Stockwell, 1992). The SALT method is compatible with the Hunter model for those who use that particular classroom sequence of teacher action (Bass and Bass, 1991). The results provide affective, cognitive, and physical skill changes at an enhanced level. Elementary schools in Minneapolis, Chicago, and San Diego have received attention as inner city schools which produce extraordinary results using accelerated learning. Teachers who would burn out are transformed (Palmer, 1990).

A variety of audiences have expressed interest in SALT, including the US armed forces through the National Research Council (Palmer, 1990), the US Agency for International Development (Palmer, 1991), the Iowa Legislature (Schuster and Prichard, 1978), special education researchers (Palmer, 1985), and basic researchers in education examining the individual components of the method (Stein, Hardy, and Totten, 1982). Training is typically conducted during summers or one-week inservice presentations to active master teachers. Teachers generally request training and to some degree self-select themselves through their own interest and motivation. Several training grants have been funded in Phoenix, Chicago, and Minnesota for teacher training.

Some SALT criteria applied to student teaching or a college classroom have been organized in the form of an observation sheet with particular criteria in a rating format. It is our hope that even without the special initiative of seeking specialized training in accelerated learning, a new standard of classroom practice can be established through the use of an observation form. The "Accelerated Learning Quality Teaching Criteria" are direct suggestions of what constitutes professional quality of classroom practice in eleven categories. These categories reveal the level of preparation and intentionality of the teacher. To anyone who visits the well prepared college teacher, it becomes obvious how often teachers come to class and improvise.

The scale rates the teacher on a scale from one to five in the following areas:

Room order: The room is to be clean and orderly with visuals prepared in advance (overhead transparencies would probably rate a 3 because they are available to the student only while on the projector). Semi-circular seating creates a positive climate through a sense of community impossible in the isolated regimentation of rows of desks or chairs. Students can be enlisted to organize the room at the college level, thereby taking more ownership of the class and contributing to it. Large tablets, posters, and cards can be prepared in advance.

Visuals: Use of the blackboard only rates a 2. High level visuals contain colorful words and pictures with imbedded mnemonic devices. A poster is available to students 100% of the time in the classroom. The subconscious mind takes in the information even when the conscious mind wanders. Flowers or pictures of flowers or other pleasant pictures are highly desirable to create an uplifting climate.

Verbal: Teacher can lift the classroom climate or deaden it through the words which are chosen. Images are suggested even in well-meaning cautions by the teacher. The teacher can choose what is to be said, and it makes an immediate and subtle difference. For example, saying, "Don't forget your homework," conjures up a mental picture of forgetting homework. Saying, "Remember to bring your homework and we will play a fun game with it," creates an entirely different and positive picture. The use of positive suggestion, such as, "You'll enjoy doing these exercises quickly and easily," is technologically far advanced over, "Most people have trouble with these, but with hard work maybe you'll do better than last year's students."

Intonation: An energetic, varied and dramatic voice creates vigorous attention in class. The voice is an instrument to be used creatively to engage the students. Many student teachers and even veteran teachers will benefit from consciously listening to their voice as they speak. Advanced students can learn a variety of voice qualities and inflections in a systematic way to connect with students according to a learning style format of visual, auditory, and kinesthetic listening.

Authority: Being a master of the content to be taught is important. Authority is a different quality from being authoritarian (undesirable force).

The authority is an author, a creator, reinventor and master of all viewpoints regarding the topic. Notice that the two-sided or conflicting viewpoint is only at level 3.

Tone/Mood: The emotional climate of the class at the interpersonal level has a direct effect on brain biochemistry. If students are confidently interacting they will like the class and learn the material more efficiently. A relaxed and playful mood, with the possibility of delight is possible.

Clarifications: Many college students are reluctant to interact, much less ask questions. How the teacher responds sends a message as to whether or not the student is welcome in the class. The teacher can make the class an inviting and safe place to risk asking questions. Teachers can notice in themselves the context they have for questions (an irritation, distraction, interruption) for subtle messages sent by the teacher to the student.

Dramatic Examples: The teacher can choose mnemonic cues which are a great aid to acquisition of material by the examples given. To have no examples is to approach a topic in the abstract entirely. The use of metaphor can be easily cultivated, and the more outrageous the example the better. Figure area of a circle using the example of pizza sizes and pizza pricing. Some examples really are practical!

Imagery: Eyes-closed review creates clarity and personal experience with the content with huge brain impact for retention and recall.

Grouping: We live in an age of cooperative learning, team membership, flexible social reorganization and engaging interchange. Grouping can be highly motivating, but groups need monitoring from the instructor to insure equitable engagement in the activities.

Activities: Activities have several uses, including, reactivation of the material to long-term memory storage, application, synthesis, analysis. The game context distracts the mind from self-consciousness and embarrassment since the attention is on playing the game. Facility with the curriculum content is developed in an appealing social encounter, and the students want more. Motivation takes place without any special attention to the matter. Games can be in the seat, on the floor, card games, physically active games, physically active games such as races, board games with dice and cards, and students can make up games with the content. Creativity such as writing and putting on a play or skit also qualify as games. Crossword puzzles or jigsaw

puzzles, ball tossing, talking, charades, stepping, rope jumping, etc. all can be used with curricular content.

ACCELERATED LEARNING QUALITY TEACHING CRITERIA
QUALITY SCALE 5 - Highest Quality, 3 - Neutral, 1 - Lowest Quality

INDICATORS	5	4	3	2	1
Room	Prepared Visuals Circular Seating	Purposeful Visuals Tablet	Orderly Clean Blackboard	Cluttered	Unprepared Scattered Chairs
Visuals	Content on 3-D posters in colors	Some Poster Content	Transparencies Black & White posters	Blackboard	No visuals
Verbal	Consistent Positive Uplifting Inspiring	Positive Suggestion	Generally Positive Pleasant Confident	Apologetic Embarassed	Critical Negative Sarcastic Cynical Aggravated/ Angry
Intonation Rapport	Purposeful Varied Effective	Varied Often Purposeful	Pleasant Sometimes Varied	Two tones Unconscious	Monotone
Authority	Autoritative Expert Inventor Master Creator	Objective Proponent Overview Variety of aspects	Two-sided View Knowledge-based	Personal one-sided viewpoint Subjective Opinion	Authoritarian Biased Hypercritical Unread/ uninformed
Tone/Mood	Fun Inviting Playful	Relaxed Pleasant Engaging	Teasing Objective	Tiring Boring Exhausting	Hostile Punitive Fearful
Clarifications	Natural Extended	Questions encouraged Some clar.	Unsure After class	Questions tolerated	Questions discouraged Hostile
Dramatic Examples	Content Scripts	Role Playing	Positive examples	Negative examples	No Examples
Imagery	Eyes closed Vivid images Analogies	Vivid examples Metaphors	Positive examples	Negative examples	Abstractions
Grouping	Inclusive Changing Flexible Cooperation	Study groups Project groups	Pairs for in-class review	Instructor Student interaction only	No interaction Just listen
Activities	Content Games Fieldtrip	Paper-pencil activities Assignments	Computer games	Negative "don't" examples	No applications

We live in an age in which quality of the workplace is being addressed. Accelerated learning is a fun and energizing method and teachers report feeling alive and full of vitality at the end of the school day. The creativity of students is affirmed and nurtured. The climate is one of security and pleasure in relation to the curriculum. Quizzes may be given, but they are not the focus of the class (learning is the focus). The teacher also gets more pleasure from the class, more satisfaction, more recognition from the students, and more scholastic results.

If there is only one method, as Duffy maintains, then it seems a good investment to improve on the input and climate, to optimize the technology of presenting to create the most economical and straightforward approach. The AL Quality Teaching Criteria rating identifies the qualities most easily incorporated for teachers without any special Accelerated Learning training. With selected readings, teachers and professors can explore independently to improve their skills.

At the Office of Accelerated Learning at Winona State University's Department of Special Education, we serve as a clearinghouse for Accelerated Learning, consulting with Minnesota State University System faculty, local schools, researchers and inquiries from around the world. For the past three summers we have held teacher training workshops with persons in attendance from Europe and South America. Iowa State University continues to train teachers during the summer also.

National organizations have been formed in many countries, including Australia, New Zealand, Japan, Germany, Finland, Austria, France, England, and the United States. National and regional conferences are held annually. In the USA, the Society for Accelerated Learning and Teaching currently has about 800 members, many of whom are college professors.

What we are about is a new standard of practice in the classroom, a new standard for the professional climate and professional input. It is clear even from experience in the spare environment of remote barren classrooms in African villages that these procedures work, even without a blackboard where the teacher must draw words and diagrams in the dust on the ground.

The old tradition of teaching through fear and intimidation is no longer acceptable pedagogy. The memory blocks, embarrassment, blanking out on tests, refusal to ask questions or volunteer in class are the old legacy. The future

of teaching is bright in both personal satisfaction in the teaching act and results with students. We have a science and a technology for application of the science which is easy and fun. Please feel free to take this rating form and try it yourself and with others. I'm sure that you will enjoy the experience.

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HISTORY, HEGEMONY & THE NEW RIGHT: IMPLICATIONS FOR HISTORY TEACHER EDUCATION

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This paper focuses attention upon one aspect of a crucial issue currently facing history teacher education in the 1990's. This involves the extent to which the cultivation of 'reflection' within the teacher education process can be reconciled with the introduction of a centrally imposed curriculum, namely the National Curriculum (NC) for History (DES, 1991; Welsh Office, 1991). Thus, Pendry (1990) has identified this as a major 'dilemma' facing history teacher educators.

The idea of 'reflection' has provoked much attention since it was first identified and applied to the professional context of teaching (Schon, 1983). As Calderhead (1989) has suggested, 'reflection in action' is most commonly associated with the accumulation of professional knowledge needed for a full understanding of the complicated practical situations within the teaching process. Yet Calderhead also draws attention to a less familiar aspect of reflection, namely 'reflection as critical self-determination'; this is interpreted as:

> "a process of becoming aware of one's context, of the influence of societal and ideological constraints on previously taken-for-granted practices." (Calderhead, 1989, p.44)

The existence of the NC, with its emphasis upon a pre-ordained-ready-to-deliver curriculum package has serious implications for the accumulation of these reflective critical capacities. The dangers involved in such curriculum developments for the concept of professionalism and professional autonomy have been well documented (see Apple, 1986). Thus, by not being aware of the historical development of NC History, student history teachers may fail to question its 'finality,' especially as the novelty of the new structure wears thin and it becomes a natural part of the occupational culture of teaching. This threat has provoked the following observation:

> "... student history teachers need to be made aware of the origins, development and actual creation of the NC. In this sense, NC history must be perceived as a product of an evolutionary process." (Phillips, 1992a).

211

This paper places the debate over the teaching of history within a contemporary historical perspective. It thus draws attention to the ideological forces which influenced and shaped NC History. By identifying that the NC is itself a product of conflicting forces within educational policy making, it stresses the notion of NC History as a product of the 'evolutionary process' described above. The paper thus has the potential to contribute something to the encouragement of 'critical reflection' referred to by Calderhead.

Although heated debates over the teaching of history have not been confined exclusively to the UK (see Wegner, 1990, 1992) and although controversies over the school history curriculum had emerged in the UK at various points in the 20th century (see Aldrich & Dean, 1991), the conflict over history reached a height of intensity during the 1980's and early 1990's. The paper argues that the controversies over the introduction of the General Certificate of Secondary Education (GCSE) (DES, 1985a) and the NC itself arose because of an attempt by ideological interest groups to undermine a 'new consensus' which had emerged over the teaching of the subject. This was part of a wider attempt to 'Reverse the Ratchet' regarding the post war consensus over education (Salter & Tapper, 1988). The substance of this 'counter-hegemony' is analysed in some depth by considering the arguments presented by these groups themselves. The paper argues that although the outcome of NC History can be interpreted as a reaction to this conservative agenda, doubts remain regarding the finality of this settlement.

The 'New Right,' Thatcherism, and the attack upon the post-war 'consensus'

The major thrust of the reforms of the 1980's and 1990's in education in the UK have involved an attack upon the accepted customs, procedures, and relationships built up since the Second World War, a process which some observers have termed "the breakdown of consensus" (McNay & Ozga, 1985). This consensus was based mainly upon the tri-partite professional relationship between teachers, local, and central government (Lawton, 1980). Much of the educational legislation of the 1980's and early 1990's has been influenced by a range of ideological interests:

> "often referred to collectively as the New Right. This body of thinkers, dispersed amongst a host of influential pressure groups,

212

has a history going back to the 1950's, but it has pursued its objectives with exceptional vigour" (Chitty, 1989, p.16)

The phrase 'New Right' referred to above needs careful definition for it is an umbrella term for a whole range of seemingly contradictory ideological influences (Levitas, 1986). It contains elements of conservative and radical thought, neo-liberalism as well as neo-conservative authoritarianism. On occasions in the 1980's, these ideas transcended traditional party boundaries but in the main, they are most commonly associated with Margaret Thatcher's Tory Party. Thus, when Bosanquet (1983) referred to a 'new' right developing in the 1980's, he had in mind almost exclusively a neo-liberal definition of the term. This was the type of doctrinaire economic ideology inspired by the writings of Adam Smith, Friedman, and Hayek. Yet, there is a counter balance to this neo-liberal tradition within 'New Right' thought, one which offers a deeply conservative, traditional, and hierarchical interpretation of society. This strand of thought took inspiration from such organizations as the Salisbury Group, formed in 1977 to promote conservatism through its journal 'The Salisbury Review' (see Scruton, 1988a & 1988b). The major aim of this organization and others within this neo-conservative tradition was to promote the tri-partite notion of 'hierarchy, authority and nation' (Levitas, 1986, p.4).

If many of the central elements of both these traditions owed as much to the 18th or 19th centuries as to the 20th century, the real novelty of Thatcherism rested upon the unique fusion of these two potentially contradictory strands of thought into one dynamic ideology (Hall & Jacques, 1983). But what of education? How did these influences shape the education policy in the 1980's and 1990's? It is possible to identify a range of influences upon Thatcherite education policy; thus Jones (1989) identifies three broad political complexions, namely 'cultural rightism,' 'classical liberalism,' and 'conservative modernization.' Using some of the terms used by Williams (1965), Dale (1989) has defined five influential groups involved in education within Thatcherism, one of which, referred to by Dale as 'the populists,' is particularly important for the argument presented in this paper. It was Hall (1979 & 1980) who first drew attention to the concept of 'popular authoritarianism,' a neo-conservative attitude which provided so much impetus to Thatcherism in the early 1980's. Apart from the obvious themes of

213

'hierarchy, tradition and nation,' added to this ideology was a seemingly 'common sense' attitude to what had hitherto been seen to be complex problems. Dale describes the influence of popular authoritarianism upon the educational sphere; thus the 'populists' in education are those who deeply distrust educational 'experts' whose theories have led to a drastic decline in educational standards; instead, education should be concerned with 'common sense' (Dale, 1989, p.84).

In view of the rich diversity within 'New Right' thought, one might be forgiven for questioning whether Thatcherism was nothing more than a disparate force, an array of conflicting influences and ideas. However, following Hall & Jacques' notion of the synthesis of neo-conservatism and neo-liberal thought, Whitty (1989) has emphasised the strengths rather than the weaknesses of these neo-liberal/neo-conservative elements for the formation of educational policy. After all, both traditions were united by a common ideological attack upon the basis of the post war consensus over education.

Popular authoritarianism, neo-conservatism and curriculum policy: shaping the hegemonic agenda:

The announcement of the establishment of a National Curriculum (NC) in 1987 by Kenneth Baker, the Secretary of State for Education, was the pinnacle of the government's moves towards a centralised curriculum. The NC restored formal separate subject disciplines; thus it consisted of 'core' and 'foundation' subjects, each with formally defined programmes of study, setting out the skills, content and knowledge which each should teach (DES, 1987). These were themselves to be enforced through a rigid assessment and testing structure. As Hargreaves (1989) has suggested, this amounted to a restoration of conservative subject culture in schools. This had its origins in the Black Papers of 1969 and 1975 (Cox & Dyson, 1969, Cox & Boyson, 1975) and whose authors had long campaigned for many of the things advocated in the NC. In this sense, the NC could be interpreted as a victory for neo-conservative, rather than neo-liberal elements of 'New Right' thinking within Thatcherism. How had this 'victory' been achieved?

A feature of 'New Right' activity in the 1980's was the growth and development of pressure or 'interest' groups. Griggs (1989) has outlined the extraordinary range and variety of such groups actively concerned with

214

educational issues. The most influential of these, I would argue, have promoted traditional neo-conservative and populist themes. Three in particular have been very active; these are the Centre for Policy Studies (CPS) established by Keith Joseph and Margaret Thatcher in 1974, the Hillgate Group, whose first publication appeared in 1985, and the Campaign for Real Education (CRE), established in 1987. Quicke (1988) has offered a perceptive account of the nature of the mainly neo-conservative agenda advocated by these groups; this has involved:

1. Stressing the fact that there is a 'crisis' in education, that something needs to be done urgently in order to prevent disaster.
2. Parents can no longer trust in the education system.
3. LEA's and teachers have abused their power.
4. A deep distrust of curriculum reform, relevance or child-centeredness which are essentially attempts at 'social engineering' and 'instrumentalism'; these have undermined traditional educational values.
5. A detestation of multi-cultural, anti-racist and anti-sexist education which is regarded as politicised, worthless, and damaging.

Apart from traditional methods such as pamphleteering, these groups have used a range of effective promotional tactics. For example, they have successfully maximised their contacts with the press (particularly the 'populist' press) by ensuring considerable media coverage, often using simple, effective slogans (Cunningham, 1992). Another subtle tactic, as Griggs (1989) points out, is the deliberate attempt to use 'official' sounding titles for their organizations; there is thus the hint of quasi-officialdom and links with government which help to mask political/ideological intent. A less subtle, more direct tactic, mentioned by Chitty (1989) is to court links with policy makers themselves. It is no wonder that Quicke and others (eg Hall & Jacques, 1983, Seidel, 1986) interpret this agenda and the strategy employed as nothing less than an attempt at hegemony:

> "the intervention of the 'new right' in education can be seen as part of a broader hegemonic project to construct a political discourse through which the authority of the state and traditional social values can be restored" (Quicke, 1988, p.5).

This hegemonic intention has as much to do with restoring features of the past than in creating an entirely new future. Yet, the way in which it is

portrayed and the things it attacks makes it seem more radical, for the main attack of this agenda is centered upon the post war consensus on education itself. When Gramsci first developed the notion of hegemony, he had in mind a positive attempt by the proletariat to wrest the cultural initiative away from the property owning classes who, through social, political, and economic institutions, especially the church and schools, perpetuated their own form of (dominant) ideology (Gramsci, 1971). As one of the most recent analyses on Gramsci has indicated, he envisaged a 'counter- hegemony' which would itself depend on:

> "intellectual activities. These would produce, reproduce and disseminate values and meanings attached to a conception of the world attentive to democratic principles and the dignity of humankind" (Holub, 1992, p.6)

The irony is that, during the Thatcherite era, there were indeed 'intellectual activities' but they were undertaken by intellectuals not, as Gramsci envisaged, from the Left but by the Right, involving a 'counter hegemonic' attack upon the perceived allied liberal/socialist establishment which had permeated all levels and institutions of intellectual life in British society, especially education. Thus, a spate of intellectual and quasi-intellectual activity focused attention upon the failure of all aspects of the post-war educational establishment. The growth of comprehensivization, with its stress upon egalitarianism, had reduced educational standards (Green, 1975). The curriculum had been hi-jacked for political purposes involving neo-marxist indoctrination by teachers and their allies in LEA's and the university education departments (Scruton et al, 1985). Consequently, there was no longer any respect for 'traditional learning' (O'Hear, 1987) and perhaps most seriously of all, there was contempt for the traditional (i.e. white, English) culture due to the dangerous notion of 'relativism' (Scruton, 1986). Nowhere was this wholescale assault on traditional value and culture better exemplified than in the history curriculum in schools since the Second World War.

History and the growth of 'consensus':

The importance of the New Right's role in education and its impact upon macro curriculum policy making has not been lost amongst some scholars writing

216

in the field of the history curriculum. In a prophetic contribution, for example, Tosh warned that:

> "History is a political battleground. The sanction of the past is sought by those committed to upholding authority and by those intent on subverting it, and both are assured of finding plenty of ammunition ... There are signs that the history syllabus in British schools is about to become a bone of contention once more, as conservatives and radicals shape up for a struggle for control." (Tosh, 1984, p.8)

A year later, history had become one of the most intensely controversial subjects within the newly introduced General Certificate of Secondary Education (DES, 1985a). One of the major reasons for the conflict over a previously un-controversial school subject was the growth of interest amongst pressure groups, witnessed by an extraordinary range and variety of pamphlets on the history curriculum, the vast majority of which were neo-conservative and populist in nature. Within only five years of the introduction of the GCSE, Slater (1989) provided a brilliant analysis of the forces which were seeking to shape and influence the history curriculum. Writing just before the controversy over the NC was to break out, Slater described an assault upon the 'consensus' over history teaching, involving a directly political interference in the way that history was being taught in schools; this manifested itself not only in the way that the NC had been organized, with a specialist subject committee established to advise the Secretary of State upon the history to be taught but also in the way that one 'think tank' in particular (the Centre for Policy Studies) had 'set the pace and agenda of the debate' (Slater, 1989, p.4). Slater pointed out, for example, that of seventeen pamphlets produced by the CPS on the school curriculum, four of these were concerned with history alone. What Slater was describing in his thesis was, no less, part of a wider hegemonic attempt at restoring a traditional neo-conservative, populist agenda.

As Slater himself indicated and as Aldrich and Dean (1991) have recently confirmed, with one or two exceptions, there was a broad consensus over the teaching of history up to and even during the 1960's. This essentially involved a traditional menu of historical content, primarily British with some European history, examined in a formal manner by essay-type examinations. History courses thus reflected faith and confidence in Britain and the British

heritage; such confidence in part reflected a predominantly homogeneous (i.e. white/English) culture which could therefore offer a seemingly uncontentious interpretation of the past; some refer to this as a 'certainist' notion of history (see Jenkins & Brickley, 1991). Of course, Welsh, Irish, and Scottish history was studied but only as it related to English history.

The 1970's were a turning point in this respect; in March, 1972, the Schools Council funded the History 13-16 Project, an attempt to re-vitalise both the teaching and place of history within schools. As a later publication claimed, it was a 'conscious attempt to re-think the philosophy of teaching history in schools' (Sylvester, 1976, p.8). Basing its pedagogical strategies upon taxanomic approaches such as those devised by Coltham & Fines (1971), the Schools Council History Project, (later re-named School History Project [SHP] after the Schools' Council was abolished in 1984) focused attention upon the process of history, stressing that history must be viewed as a body of evidence and that specific skills were required to understand it. Although it maintained a healthy respect for chronology, it also paid more attention to the definition and cultivation of historical concepts such as change and continuity or causation. Thus, because of the vast nature of historical study, certain elements of history had to be selected in order to cultivate the relevant skills and concepts (Shemilt, 1980). Moreover, because it placed as its major priority the needs and interests of the adolescent, its choice of historical content was unconventional; SHP history thus involved the study of social/economic, as well as more traditional political/constitutional history and because an attempt was made to develop pupils' understanding of the world in which they lived, SHP encouraged the study not only of local history but modern world history also. In this sense, SHP history stressed a diversity of approach, both in terms of methodology and in terms of content; it thus provided an important contribution to what became known as the 'new' history (Jones, 1973, Rogers, 1984).

It is important to note that SHP also contributed to the debate over assessment in history. Thus, the SHP publication 'A New Look at History' claimed that 'most examinations in history test primarily the ability to recall information' and that the SHP was attempting to put forward a case for 'an additional assessment in history, not so much of the knowledge acquired as a result of studying the syllabus given but the abilities pupils have acquired

to think historically' (Sylvester, 1976, p.53). Although it stressed the respect for the study and assessment of knowledge, it also believed that for pupils to achieve a meaningful historical understanding, emphasis would also have to be placed upon the assessment of concepts and skills relating to historical analysis. Some of these concepts were very sophisticated; for example, SHP encouraged the cultivation and assessment of empathetic reconstruction, an ambitious attempt at developing a knowledge of history through an intricate understanding of the lives of people in the past (Shemilt, 1984).

In view of the radical nature of its approach, 'new history' appeared to be a threat to the traditional consensus on history teaching. Throughout the later 1970's and 1980's it became highly influential; HMI began to identify SHP as good practice, hardly surprising in view of the fact that the SHP's first director joined the HMI (Aldrich & Dean, 1991). Thus, HMI documents in the 1980's endorsed SHP principles, stressing history's utility, its diversity and its conceptual nature (DES 1985b, 1988). Even more significant was the impact 'new' history had upon the GCSE, with the criteria for the new courses endorsing much of the philosophy outlined above; significantly, the criteria did not prescribe a specific body of content. Rather, schools could select from a range of syllabuses so long as they met the general criteria (Booth et al, 1987). An important piece of research regarding history teachers' aims and philosophy and conducted during the implementation of the GCSE, concluded that although most history syllabuses in the lower years of the secondary school covered a broadly chronological outline, 'most syllabuses were based on topics, themes or patches' rather than a 'complete chronological coverage' (Patrick, 1987, p.9.) This pointed to an apparent unity developing over the aims of history teaching; most teachers in the survey broadly supported the skills and evidence-based approach associated with the 'new' history. A 'new consensus' had emerged over the teaching of history in schools.

Neo-conservatism, populism, and the attack on school history:

The developments in history teaching seemed to epitomise everything that advocates of neo-conservative principles detested in education in general: the teaching of skills 'rather' than knowledge; disrespect for traditional forms of learning and testing; apparent contempt for established culture through the

study of non-traditional subject areas; and the encouragement of social engineering and indoctrination. Throughout the 1980's and early 1990's a neo-conservative/populist attack was conducted to break the apparent liberal/ socialist influence on history teaching. As early as 1980, Partington had seriously questioned whether the 'new' history, with its emphasis upon the cultivation of skills and concepts rather than the learning of traditional historical knowledge was, in fact, 'exalting the means above the ends' of history (Partington, 1980a, 1980b). He emphasised that history should be taught for its own sake rather than anything else. Partington's scholarly early critique of the history curriculum soon gave way to more direct attacks as he became influenced by neo-conservative thought. In 1986, in a contribution to a collection of papers on the school curriculum published by the Social Affairs Unit, Partington launched a wholescale attack on the history 'establishment.' Although he recognized SHP's contribution to the defence of the subject against the old enemies of 'curricular reforms' and 'integrated approaches,' Partington denounced the Project not only for polarizing the teaching of history between 'new' and 'old' but for ignoring content which, said Partington, encouraged a 'host of malignant sprites' rather than the study of heritage and tradition. This provided the focal point for Partington's most serious charge of all, that these tendencies had contributed to the 'denigration of English (later British) history.'

Similar themes could be found in a CPS pamphlet produced by Beattie (1987), who claimed that history and history teaching had been corrupted by the GCSE and 'new' history. He denounced the tendency in this new approach to popularise the subject which merely encouraged pupils to ignore the proper disciplines of history. Beattie's pre-occupation with method can be explained not only by his desire to stress history's intellectual place as a crucial academic subject in schools, but also by his determination to denounce value relativism in history. He also lamented the tendency to study social, economic, European, and modern history rather than traditional, political history. Beattie then turned his attention upon the major cause of these corrupting influences. In an important section, Beattie denounced the notion of teacher autonomy viz a viz the selection of historical content. Teachers should not have this special, privileged status. If the major element of Beattie's contribution had been neo-conservative, this section of the paper

220

was avowedly populist and a touch neo-liberal. He claimed that teacher autonomy had simply encouraged the take-over of the subject by experts; thus, it should be replaced by a much more common sense approach, involving the control of the educational market by parents.

This populist banner was taken up with enthusiasm by others writing for the CPS. Deuchar (1987) attacked the GCSE which had been so clearly influenced by new history. The pamphlet was devoted to demonstrating the extent to which concepts such as empathy had contributed to this process. Deuchar's contribution was the best example of the populist approach being used to attack the 'experts' and their effect on history; the pamphlet made simple common sense, recalling the good old days of the traditional approach to history teaching, reflected in such comments as 'Not so long ago a school was a school and a teacher was a teacher and history was - more or less - history' (p.1).

The attack on 'new history' and empathy in particular was continued by Kedourie (1988) while the GCSE in general was denounced by Hiskett (1988) and in a collection of papers published by the official sounding 'Education Research Trust,' a blanket term to describe a diverse group of contributors, including those from the CRE, CPS, and the Salisbury Group (North, 1987). Yet the most powerful and direct attack on GCSE and empathy came from a prominent academic who was to play a vital role in the subsequent debate over the NC. On 1 March, 1988, Robert Skidelsky's article entitled 'History as Social Engineering' appeared in the 'Independent' and initiated a bitter press debate over the 'new history,' the impact of GCSE, and the nature of historical empathy in particular. Although Skidelsky's politics had been rooted firmly in the middle ground, this contribution and his subsequent role in the NC debate were to earn him a reputation that was firmly on the Right. In the article, Skidelsky argued that because of the vague nature of the GCSE criteria, pupils were not given credit for demonstrating real historical knowledge; rather, there was a pre-occupation with skills. He attacked the GCSE and the educational establishment for encouraging value relativism, while the major thrust of the article focused upon the notion of empathy which, by depriving pupils of the opportunity to study real historical knowledge, allowed them to become indoctrinated.

221

Skidelsky's article summarised the whole of the neo-conservative/populist agenda on history teaching described in the earlier sections of this paper. Whether Skidelsky consciously intended this is a matter of speculation. What is undoubtedly the case is that the article stimulated a remarkable degree of interest in a single school subject (nearly 20 letters were sent to the editor from a range of individuals). This debate symbolised the intense interest which history now attracted, an interest which had been stimulated, in the main, by the efforts made by neo-conservatives to raise public consciousness about the apparant hi-jacking of the subject by the educational establishment. The debate over GCSE and empathy was important because it set the agenda for an even more important controversy - the conflict over history within the NC.

The debate over the National Curriculum for history: a "victory for the New Right?"

By the time the History Working Party (WP) for the NC in England was established in December, 1988, (a separate WP was established for Wales) elements of the Right, it could be argued, had succeeded in setting the agenda for the debate over history teaching in schools. It seemed that a radical re-think of history teaching would be undertaken. This was confirmed by the inclusion of only three practising history teachers on the WP, a body which was chaired by a personal friend of the Secretary of State himself. To use Chitty's words, it seemed this was "A Victory for the New Right?" (Chitty, 1989).

Yet as Jones (1989) has shown, the Right did not necessarily perceive the creation of the NC as a victory. By establishing a centralised policy making framework, Kenneth Baker had in fact allowed the traditional enemies of the Right - HMI, DES bureaucrats and educational experts - a free hand to institutionalise the hated practices of the old system. Those conservatives who had contributed so forcefully to the debate over history prior to the NC now realised that all their previous successes would count for nothing at all if they failed to influence the findings of the body which was given responsibility for creating the Final Report for History in the National Curriculum.

The WP clearly faced a difficult task; it had to work within the statutory framework which demanded specific programmes of study and an

222

assessment structure which had to comply with the requirements of the Task Group on Assessment and Testing (TGAT, 1987). To avoid the mistakes of the GCSE which had been so carefully articulated by the Right, precise instructions were provided by the Secretary of State that a general criteria for selecting historical content was unacceptable. On the other hand, the WP had to decide upon historical content which was acceptable to the majority of history teachers and at the same time they had to convince conservative critics that they were not succumbing to teacher interests. From the start, there were rumours that the WP was being politically manipulated by the Secretary of State and the Prime Minister herself, especially when the publication of the Interim Report for history was delayed (Historical Association, 1989a). When it was finally published in August, 1989, the Report contained recommendations that the prescribed historical content should be taught in a chronological framework (DES, 1989). However, a letter attached to the Report from the Secretary of State explained the delay in publication; the letter welcomed the Report's emphasis upon chronology but expressed concern at the lack of British history and, most crucially of all, the WP's decision not to include historical knowledge as an attainment target in itself.

It became clear that teachers welcomed the avoidance of a knowledge attainment target but expressed genuine alarm at the choice of historical content in the Report, its prescription, and the way that the WP had seemingly ignored the best achievements of the 1970's and 1980's, especially the GCSE (Historical Association, 1989; Phillips, 1991). In short the WP had apparently succumbed to the demands of the Right. Yet, if teachers seemed dissatisfied with various aspects of the Report, the CPS was apparently incensed by the WP's recommendations. In a CPS publication, Lawlor (1989) said that the Interim Report was not a compromise at all but a victory for 'new' over 'traditional' history; it gave the impression that it was committed to the teaching of facts but, in effect, the teaching of facts was impossible under the proposals because of the attainment targets. This was hardly surprising, said Lawlor, because the authors of the Report were more concerned with process rather than seeing history as 'an end in itself.' Such an approach would leave pupils ignorant and confused. History should not be taught for 'enjoyment' at all because of its seriousness and importance. Finally, British history and chronology had been grossly undervalued in the Report. Even by the

223

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CPS' own standards, Lawlor's contribution was uncompromising in the extreme. A detailed, rambling, often illogical summary of 42 pages, her analysis attempted to draw a false dichotomy between 'skills' and 'content.' It showed, perhaps, that the Right was beginning to lose the initiative.

However, conservative political pressure now came from another, potentially more credible and influential source. In March, 1991, the month before the publication of the Final Report, the 'Teachers' Weekly' could proclaim that 'Academics Enter History Row' and reported the formation of the History Curriculum Association (HCA), an organization formed by Robert Skidelsky and others. The HCA contained a range of academics, mainly conservatives, such as Stone, Clark, and Lords Beloff and Blake. Prior to the publication of the Final Report, some academics had been campaigning on the neo-conservative/populist agenda. For example, in the 'Sunday Times,' Stone had demanded: 'Put nuts and bolts back into history'; the article contained familiar themes: lack of facts and dates, attacks on empathy, contempt for value relativism and a plea for a 'free market' of examining groups offering traditional, non-GCSE courses. Stone argued that 'we should assert British culture rather than a rag-bag of 'empathy' history' (Stone, 1988). A little later, at the time of the publication of the Final Report, Skidelsky demanded: 'Let them learn the landmarks' in an article which again emphasised the traditional message (Skidelsky, 1990). Yet, one of the most outspoken conservative academic contributors to the debate over history in the NC was Jonathan Clark who defended the Right's interference in the controversy in particularly uncompromising terms; after all, educationists had destroyed the subject and there was thus a need for academic historians to restore the subject to the pupils (Clark, 1990). Clark also made no attempt to hide the Right's political agenda; he attacked the Left for claiming exclusivity on Gramsci's ideas. After all:

"Hegemony is a game in which all can join." (Clark, 1989)

However, when the Final Report was published (after another delay) in April, 1990, it seemed that the Right was losing the hegemonic "game" referred to by Clark above. It was clear that, as with the earlier recommendations, the Prime Minister had held up the Final Report (see 'Times Educational Supplement' [TES] 30.3.90). The Report turned out to be a judiciously worded document which was a determined effort to take into consideration the views of

the disparate groups within the debate. Many of the major weaknesses of the Interim Report - attainment targets, rationale, programmes of study - were improved upon. It confidently justified history's place in the school curriculum as a separate discipline while the document offered a rational approach to the selection of content, involving a balance between British and European/world history. On two of the most sensitive and contentious areas - British history and chronology - the WP had carried out the wishes of the Prime Minister and the Secretary of State by recommending a 'broad chronological structure' and increasing the percentage of British history. All this was to pale into insignificance, however, when it became clear that the authors of the Report had refused to accept the Secretary of State's other demand - there was to be no attainment target geared specifically to historical knowledge (DES, 1990). Moreover, the framework of the Final Report, with some modifications, was used for the Statutory Orders for History, the legal basis of history in the NC (DES, 1991). Was this a defeat for the Right?

The creation of consensus?

A recent post-NC analysis has stressed the synthesising qualities of the NC history settlement, involving a genuine potential for the creation of consensus amongst teachers regarding the aims outlined in the Final Report (Roberts, 1990). In another particularly perceptive article, Jenkins & Brickley (1991) maintain that NC history must be seen as a post-modernist reaction to the Thatcherite 'certaintist' view of history. NC history in its present form involves a continuity of practice with the major features of 'new history'; after all, it stresses conceptual understanding, evidential skills and the notion of 'interpretations' in history (reminding conservative critics that there is more than one interpretation of the past). Although the NC demands a chronological approach and the study of predominantly British history, the NC also requires the study of non-European society and multi-cultural, gender and cross-curricular issues (see for example, NCC, 1991). In view of this, the neo-conservative attempt at counter-hegemony may be seen as a failure. How can we account for this?

This paper began by considering some of the basic tensions and contradictions within 'New Right' thought itself; differences of ideology and strategy may indeed have contributed to the ultimate failure of neo-

conservatives to achieve an exclusively traditionalist Final Report. Even within the tradition of neo-conservatism itself, there were tensions over the extent to which central government should actually interfere in the direct control of the curriculum. Thus, whereas Lawlor called for a restoration of traditional learning, she also recognized the potential dangers and difficulties associated with over zealous centralist imposition; hence, the need for prescription regarding a 'Correct Core' curriculum but little else (Lawlor, 1988). In this sense, this reflected the Right's essential distrust of anything that was overly centralist for this inevitably provided opportunities for the 'educational establishment' itself. On the other hand, there were other prominent conservatives who had no such concerns about radical intervention over history because of its hegemonic importance (see Clark above). There was also the tension between central authoritarianism and the notion of an educational market place, with parents themselves demanding a traditional curriculum. Nowhere was this tension better exemplified than in Margaret Thatcher's comments on the history curriculum, when she expressed concern about the centralist prescription of the Final Report (see interview in 'Sunday Telegraph' 15 April, 1990).

More important than the divisions outlined above was the weakness of the argument put forward by neo-conservatives themselves, particularly the populist element (for example, see Deuchar earlier). Lawlor's critique of the Interim Report and her later contributions in the press were easily discredited by the Historical Association (HA). Stone's demands for the 'nation's culture to be rammed down the children's throats' (reported in the TES: 25.5.90) displayed not only the Right's arrogance but complete insensitivity and ignorance of what actually goes on in schools. Similarly, the Right's interpretation of the notion of 'knowledge' (essentially defined as 'facts' and 'dates') was simplistic. This was exemplified when the HCA was discredited for claiming, as it did in its infamous advertisement (TES: 11.5.90) that the Final Report disregarded the importance of 'knowledge.' Academics who had found their names included in the original advertisement wrote to disclaim any contact with the HCA (TES: 27.6.90). In contrast to the extremists amongst the Right, these academics, like other more perceptive contributors to the debate over history, had come to recognize the intellectual strength of the argument presented by the WP itself in the Final

Report regarding an interpretation of 'historical knowledge.' In a powerful section in the document, the WP affirmed the importance of knowledge in history, specifying it as 'information,' 'understanding,' and 'content.' All were essential if children were to have a meaningful historical education:

> "In order to know about, or understand, an historical event we need to acquire historical information but the constituent parts of that information - the names, dates, and places - provide only the starting points for understanding. Without understanding, history is reduced to parrot learning and assessment to a parlour memory game" (DES, 1990, p.7)

The intellectual force of the Final Report and its judicious selection of historical content allowed anti-conservative opposition to develop. The HA mounted a remarkably successful campaign to unite teachers around the central elements of the Report's aims. The argument rested upon the claim that if the Final Report was rejected by teachers, then the Secretary of State was likely to replace it with something worse, namely a conservative document, perhaps drawn up by Skidelsky, Lawlor, and others. Whether this was ever a serious proposition is a matter of speculation but there can be no doubting the effectiveness of the HA's strategy (Phillips, 1992a). The HA was able to convince ministers that teachers supported the Final Report and therefore any attempt to reject it would make a nonsense of the whole consultative structure of the NC. The contribution of the HA and others such as the History Workshop (1990) allowed many within the educational establishment to re-group and oppose the most extreme demands of the conservative agenda (Little, 1990).

However, to view the apparent 'defeat' of the neo-conservative/populist agenda as being permanent would be simplistic and a gross under-estimation of the New Right's abilities to influence the political process. Moreover, the anti-conservative elements of NC history itself should not be over-estimated: the new curriculum is prescriptive and heavily content laden; more serious is the potential of the detailed assessment structure to influence the way that teaching and learning is organized (Medley & White, 1992). Specific aspects of the NC - such as the prescription of historical content at Key Stage 4 are reactionary and amount to a fundamental threat to teacher autonomy (Phillips, 1991). Recent developments suggest that the influence of the Right is still highly active. This would be confirmed by recent appointments after the 1992 election (see TES 31.7.92) of prominent conservative propagandists to

important advisory posts at the Schools Examinations & Assessment Council. This confirms that the neo-conservative/populist aim of counter hegemony threatens to be achieved.

Recent research was conducted to evaluate student teachers' perceptions of NC History (Phillips, 1992b). This research revealed a high level of awareness amongst the students of the origins and development of the NC; in this sense, the research showed that the introduction of the NC had not undermined this aspect of students' capacity for critical reflection. However, further research showed that this was due almost completely to the fact that their tutors had held a deep philosophical commitment to the cultivation of reflective practice. Thus, when questioned, student history teachers identified their university tutors as being chiefly responsible for creating their awareness of the wider educational issues raised by the introduction of the NC. This would confirm other research conducted on history teacher education (Booth et al, 1988; Patrick, 1988) which found that university tutors have been traditionally responsible for the development of students' wider, philosophical awareness.

New Right publications criticizing the role played by university education departments in the training process (O'Hear, 1988; Hillgate Group, 1989; Lawlor, 1990) seriously threaten the development of students' critical awareness identified above. This is also part of an attempt at the 'de-intellectualisation' of the educational process (Wilson, 1989) and is an attack upon educational research itself (Grace, 1991). Even within the creation of a 'partnership' between schools and university departments advocated by some (Booth et al, 1990), there is a danger that opportunities for research, critical reflection and intellectual/philosophical approaches to training will be lost in the quest for competence in the un-critical delivery of a centralised curriculum. It is hoped that this paper has at least helped to delay the drift towards the ultimate de-intellectualisation of one aspect of teacher education.

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230

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RESPONSE TO HISTORY, HEGEMONY, AND THE NEW RIGHT: IMPLICATIONS FOR HISTORY TEACHER EDUCATION
A Response to Robert Phillips's Paper

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My interests in English and Welsh education began in the early 1970's when I became interested in the study of the organization of the integrated day in primary education. In those days, forward looking American school systems were encouraging teachers to visit the UK and learn about the integrated day or open school as it was referred to in the States. Like other educators, I went to England to learn about this type of classroom organization. During my visits to primary schools and classrooms, I was particularly impressed by the amount of autonomy that the schools and individual teachers had in deciding upon curricular matters. This was very different from how curriculum was generally developed in the States, where school districts developed curriculum guides in compliance with state mandates and teachers were expected to implement the district's curricular policies. While teachers had a significant amount of latitude in making decisions about how to teach, they had only limited opportunity to make independent decisions about what to teach.

In the UK at the secondary level, according to Denis Lawton (1984), until the mid 80's the content of the secondary school curriculum could be controlled mainly at the institutional level by the head teacher, whereas pedagogy could be largely within the discretion of the individual teacher. Evaluation (16 plus and 18 plus exams) was determined at the regional level within a set of national guidelines. This ideology of local control of the curriculum at the secondary level was much more apparent in schools in England and Wales than in the United States. Consequently, the curricular changes brought by the 1988 Education Reform Act were so much more revolutionary than evolutionary. The movement from a decentralized educational scheme to a highly centralized one which described in broad and specific language attainment targets (objectives for core subjects and foundation subjects), attainment levels, statements of attainment, key stages, and detailed assessment

procedures must have been stressful for teachers who were given little notice or time to revise their approaches to curriculum, pedagogy, and evaluation.

In the paper presented by Dr. Phillips, he describes the impact of these reforms on particular disciplines taught in secondary schools. While the subject matter of his paper relates to the content of the history curriculum, the consequences of the legislation impact on all areas, i.e., science, math, English (the core subjects), as well as the foundation subjects of music, foreign language, physical education, geography, art, and technology. It follows that the initial preparation of teachers to teach these subjects was also affected.

According to Dr. Phillips's study, which is complemented by the work of Hartnett & Naish (1990), the politicizing of education has achieved national stature in the UK and has impacted not only on the elementary and secondary schools, but on the colleges of education as well.

In his treatise on the content of history in the national curriculum, Phillips makes an intellectual case for teachers to become aware of the political, governmental, and socio-economic forces impacting on curriculum content. The underlying notion that the new history curriculum is designed to minimize the leftist ideologies of teacher educators, teachers, and politicians is made viable by reducing the curriculum of history to a series of low level cognitions referred to as knowledge. In my opinion, this approach to teaching history becomes a form of the game Trivial Pursuits or Jeopardy. In his paper, Dr. Phillips continuously refers to "hegemony," "consensus," and "conservativism" as they relate to the New Right and concludes that the history curriculum, as a consequence of conservative viewpoints, is profoundly reactionary and a fundamental threat to teacher autonomy. Dr. Phillips is giving those who read his paper a warning that nationalizing curriculum, while on the surface may say something about equality of educational opportunity, competitiveness, and raising standards, may also be reflecting the need of the party in power to control academic freedom and the thought processes of future citizens.

In the past when I visited colleagues in Britain, I often heard them say, "What you are doing in the States today we will be doing in Britain in the next five years." Generally, they were referring to forms of classroom organization, teaching practices, special education programs, or

multi-cultural curriculum content. Today the situation may be reversed with the hue and cry for Americans to be more competitive in the marketplace, for parental choice, and for school prayer the questions educators may ask are: Can what happened in Britain happen here? What are the indicators that the United States could be moving in this direction? Finally, what role do we as teacher educators have to play in this political arena?

A review of the literature indicates that one basic difference between the history curriculums in the two countries is that while in Britain the national curriculum refers to the teaching of history, in the United States the reference is to the teaching of social studies of which history is a part. It is interesting to note that in the 1992 edition of the Encyclopedia of Educational Research (1992) history as subject matter is described under the topic headings of social studies education, elementary schools, or secondary schools, whereas science education has seventeen pages devoted to it. In the Handbook of Research on Curriculum (1992) history once again is identified as part of social studies, even though the study of history as a separate subject is the usual approach to teaching its content in the secondary schools.

Traditionally, the goals for the social studies curriculum, of which history is a part, is to make the learners good citizens. Bragaw and Hartoonian (1988) state that social studies is the study of how citizens in a society make personal and public decisions on issues that affect their destinies. They believe the goals are to make people aware of and maintain their cultural heritage. Among other things, this means that the learners need to become aware of political processes that control their lives.

Many social studies educators who are on the cutting edge of curriculum development, believe that the curriculum focuses too much upon developing low level cognitions--too much time is spent on the study of historical events, heroes, wars, treaties, and dates, and not enough time is spent on reflective thinking, which is the use of knowledge in decision making and the interpretations of historical events (Mohlman Sparks-Langer and Colton, 1991).

The traditionalists, or as Dr. Phillips would say, the conservatives or neo-conservatives, continue to advocate the organizing of concise content chronologically to include stories about heroes and nations alike (Finn & Ravitch, 1988). Support for this view comes from publishers who will not risk offending any group by offering candid accounts that highlight social

tensions. Textbook writing has thus become an extention of broader political battles. Secularized conservatives seek textbooks that glorify private associations, Christianity, free markets, and patriotism (Sewell, 1988).

In the United States the role of the federal government, while it has indirectly impacted on the teaching of history, has not had as profound an effect as in Britain. The Secretaries of Education in the United States have been both visible and invisible. The one most comparable to Kenneth Clark, the British Secretary of Education who champions the national curriculum, was William Bennett (1985-1988). Like Clark, Bennett was a conservative who believed in traditional secondary curriculum composed of core subjects of which history was one to receive considerable attention. His focus was on "excellence" which, in the 1980's, had come to imply a classical view of education, with explicit teaching of American values and a heavy emphasis on American history (Bennett, 1987).

The federal government, regardless of what party was in the executive office, has at various points attempted to influence the curriculum through the funding of some projects and the withdrawal of funds from those projects which were thought to present a point of view contrary to popular notions about education. One of the most significant cases was the social studies curriculum developed at Harvard in the early 70's. Man: A Course of Study (MACOS) asked reflective questions about man's origins and what constitutes a human being. Fundamental groups attacked it for being anti-American and anti-religious. This conflict reached the floor of Congress, whereby Congress cut funds from the National Science Foundation which in turn eliminated support for social studies curriculum development (Marker & Mehlinger, 1992).

State governments have a more direct effect on history curriculums than does the federal government. While there are many examples one could cite, those best are the examples of legislation passed on assessment of minimum competencies which in turn impact upon the content of the curriculum, as well as legislation passed on requirements for school accreditation. The influence of the state governments on schools, through their curriculum guidelines and through statewide textbook adoption (which 23 states now require), has affected teachers' academic freedoms. History textbooks in particular have been singled out as a reflection of majority control. They have been

criticized for their blandness, extreme nationalism, and their failure to apportion blame for any problems the country faces (Venezky, 1992).

The impact of these forces on the preparation of teachers to teach secondary history cannot be ignored by teacher educators. Methods courses in secondary social studies are generally identified as curriculum and methods of teaching secondary social studies. Instructors of these courses generally include curriculum issues in their syllabi, and it is assumed that in the tradition of most curriculum courses the historical, social, and philosophical foundations of curriculum development are included. If this assumption is correct, then students are aware of the impact of government on curriculum content to the same extent that English and Welsh history education students are aware of the forces operating to bring about a particular political view.

With the renewed effort by the Republicans to champion family values during the 1992 election year, it cannot be dismissed that if the party's candidate, George Bush, is re-elected there will be more attempts to influence state governments, which in turn will influence local school districts, to take a more conservative view about the teaching of history.

In a recent article appearing in the La Crosse Tribune (September 27, 1992), the chairwoman of the National Endowment for the Humanities told the National Press Club while presenting her report, "Telling the Truth," that faculty members at universities feel justified in using the classroom to advance political agendas. The result, she said, is that in many classrooms professors twist the facts to fit their beliefs in radical feminism or in an interpretation of American history that sees only racism and economic oppression. The NEH is funded by the federal government, and thus it stands to reason that the findings of this report may have a significant impact on the history curriculum. This is the same type of rationale that the conservative politicians in Britain would say needs to be dealt with.

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DIFFERENCES IN ACADEMIC PERFORMANCE: AN EXPLORATION FROM THE PERSPECTIVE OF GENDER AND IMPLICATIONS FOR THE INITIAL TEACHER TRAINING OF TEACHERS OF YOUNG CHILDREN (AGE 3 TO 11)

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Note: The term 'pupil' is used to describe a person attending a school and the term 'student' is used to describe a person studying at a university.

During the last academic year (1991/1992) the author found herself on two occasions discussing pupil performance in mathematics with regard to gender issues. On one occasion, this was with postgraduate students training to teach mathematics in secondary schools to pupils between the ages of 11 and 18. On the other occasion, the group consisted of experienced teachers from both the primary (3-11) and secondary (11-18) phases all of whom were studying for a taught Masters degree in mathematical education. The discussion that ensued following a presentation provided much food for thought as the Director of a course for postgraduates intending to teach in the primary phase. Currently, gender issues are addressed in the college-based elements of the course through two main thrusts. First, by incorporating awareness raising through day to day teaching as appropriate; secondly, by providing a specially designated week on 'Education for All' in which gender issues are a major focus. There are also opportunities through assignment choice for students to explore gender issues in more depth. Any focus during the practical teaching element would depend on the students' own interests, those of the class teacher and those of the teaching practice supervisor. This is similar to the programme that the postgraduate students training to teach in the secondary phase mentioned above had received. The experienced teachers may or may not have undertaken such activities whilst in training but would have been expected to have contributed to professional discussions in recent years and may have received some in-service training.

In both groups there was dissension with the view that schools differentiate between pupils to the disadvantage of both sexes (Delamont 1990). In both groups this was expressed in terms of "It didn't affect me so why should it affect my pupils" or a dismissal of research findings in terms

of methodology (case study, small numbers, context, etc). What was of concern was the extent to which the current cohort of primary trainees might hold those views. As it was very close to the end of the academic year it was not possible to undertake any research based on data collection so the opportunity was taken to clarify the conceptual foundations. The major questions for consideration were:

1. Do pupils perform differently according to gender; do we have all the facts?
2. What explanations can be provided for differences in performance?
3. Does the structure, style and context of the course perpetuate myths or challenge espoused views?
4. How should the course be developed to inform fully and challenge our students on this issue?

1. Do pupils perform differently according to gender?

Clearly, there are differences in performance at all levels between students. Traditionally, these differences have been explored in terms of intelligence, class, etc. One obvious difference between pupils is their sex and this has been explored more recently, roughly from the 1970s onwards (summarised in Delamont, 1980 and 1990). To take mathematics, for example, it is a "well known fact" that boys perform better than girls at mathematical tasks (e.g. Badger 1981, Shuard 1982). There are similar espoused views about pupil performance in reading.

> "...the students were 'taught' about the reading abilities of the children. The overriding message was that boys per se experienced greater difficulty in learning to read than girls" (Skelton 1987 p.167).

pupil discipline,

> ...within each class boys were rated rougher, noisier, untidier and less able to concentrate than girls (Hartley 1978) p.80.

and sport performance,

> "'Sissy' behaviour - primarily....low football ability - ensured low prestige (amongst boys)" (Clarricoates 1987 p. 190).

What is of interest is to investigate such well known facts to see if there is any sound basis for such a view and to explore possible reasons. Mathematics will be taken as an example. A recent survey of mathematical performance in public examinations, at age 18 (General Certificate of Education, Advanced Level), at age 16 (General Certificate of Secondary Education), and at age 7 (National Curriculum assessments at Key Stage 1) in Wales (Sanders, in press) shows that performance differences are not as simple as males are good at mathematics and females are not.

TABLE 1: "A" LEVEL PERFORMANCE (shown as percentage of total entries) BY GENDER: WELSH JOINT EDUCATION COMMITTEE

		GRADE						
Subject	Gender	A	B	C	D	E	N	Entries
Welsh (1st language)	Male	9.5	28.3	27.1	13.5	16.2	4.0	74
	Female	11.3	25.4	32.4	20.7	7.1	2.3	256
English	Male	11.3	21.2	20.1	17.4	14.2	7.8	850
	Female	8.7	21.2	17.8	18.6	16.1	10.3	2570
Mathematics	Male	11.41	16.11	16.5	14.3	16.5	11.0	1709
	Female	5.4	3.4	16.0	18.4	16.9	10.0	833

Source: Welsh Joint Education Committee 1990

Table 1 shows the performance in three different subjects at Advanced level for the Welsh Joint Education Committee examinations, (W.J.E.C. 1990).

It can be seen that entries for the subjects follow the expected pattern. By expected pattern is meant that generally accepted by educators and regularly cited by them in conversation. Languages (Welsh and English) are commonly seen as 'female' subjects and mathematics is seen as a 'male' subject.

In fact, in Wales more males sit mathematics than sit English or Welsh. It can be seen that the percentage performance at each grade differs in the large majority of cases for male and female candidates. However, it does not appear necessarily true that females perform better in the subjects seen as female subjects as indicated by number of entries. Whilst a higher percentage of females achieve Grade A in Welsh (11.3% compared with 9.5% a difference of 1.8%), in English 11.3% of males achieve Grade A compared with only 8.7% of

females (a difference of 2.6%). In mathematics 15.4% of males achieve Grade A compared with 11.4% of females giving a percentage difference of 4%. At the Grade A level the difference in performance between males and females is more marked than that between females and males in Welsh and males and females in English.

If one considered Grades A, B and C as 'good grades' then the picture looks somewhat different. (Table 2).

TABLE 2: PERCENTAGE OF PUPILS ACHIEVING GOOD GRADES (A-C) AT 'A' LEVEL (shown as percentage of entries) BY GENDER: W.J.E.C. 1990.

Subject	Gender	Grades A, B & C	Entries
Welsh (1st Language)	Male	64.9	74
	Female	69.1	256
English	Male	52.6	850
	Female	47.7	2570
Mathematics	Male	45.3	1709
	Female	43.5	833

Source: W.J.E.C. 1990

The differences are 4.2% in favour of females in Welsh, 4.9% in favour of males for English and 1.8% in favour of males in mathematics. Does this fit the 'expected pattern'?

If we consider the number of candidates achieving a pass grade we find that 94.6% males and 96.9% females passed Welsh; 84.2% males and 91.9% females passed English; and 76.1% males and 87% females passed mathematics. In each case a higher percentage of females than males passed the examinations. However males tended to achieve higher grades than females. This is a subtle difference in performance and needs to be teased out.

TABLE 3: G.C.S.E. (MODE 1) PERFORMANCE (shown as percentage of total entries) BY GENDER: W.J.E.C. (WALES ONLY) 1990

Subject	Gender	A	B	C	D	E	F	G	Entries
Welsh 1st Language	Male	5.3	11.4	21.4	26.0	20.0	9.9	5.2	1311
	Female	12.8	20.2	23.1	22.5	14.5	15.3	2.0	1536
English	Male	4.7	10.3	12.7	26.5	20.4	15.3	2.9	15428
	Female	8.9	15.5	26.1	26.1	15.1	5.8	1.4	16736
Math	Male	7.9	9.9	24.7	15.3	17.6	13.1	6.7	15227
	Female	5.0	7.7	22.2	17.0	19.7	14.8	7.2	16738

Source: W.J.E.C. 1990

Table 3 shows a more expected trend. In Mode 1 G.C.S.E., females perform better than males in both Welsh and English but males perform better than females in mathematics. An examination of the cumulative percentages for 'good grades' (A, B, and C) shows similar disparities.

Performance in National Curriculum Assessments 1991 was the first occasion when extensive information about pupil performance at the age of 7 has been available in Wales. The Standardised Assessment Tasks (SATs) were criterion referenced tests administered during the Summer of 1991 to all pupils in their seventh year and receiving National Curriculum led education. It was expected that the majority of pupils would be performing at Level 2.

TABLE 4: NATIONAL CURRICULUM ASSESSMENTS (MATHEMATICS) WALES 1991 PERCENTAGE SCORING LEVEL 2 OR ABOVE, BY GENDER.

Profile Component 1 (Number, Algebra, Measure)	Male 71.0	Female 77.0
Profile Component 2 (Shape, Data Handling)	Male 62.0	Female 69.0

Source: Welsh Office 1991

The results of these SATs are very interesting and show that not only are the female candidates performing better at mathematics overall in the fourteen attainment targets but a closer examination of the performances at individual topics shows that these are not following 'expected' trends. For example, in the area of spatial awareness which has long been seen as masculine territory (Maccoby and Jacklin 1975 and Ward M. 1979) the female performance is

marginally superior to the masculine performance. However, the Assessment of Performance Unit (A.P.U.) (1985) results did give indications that the differences were not so marked but were still in favour of males. It is also interesting to note that in two attainment targets (number calculations and shape) a significant number of pupils are at Level 3.

There is extensive evidence that in Wales in 1991 females outperformed males across the full range of National Curriculum mathematics at the age of 7.

By the age of 16, when most pupils take their first public examination, G.C.S.E., different trends were apparent in 1990. Although in some subjects e.g. Welsh and English, females performed better than males, in mathematics males performed better than females.

At the age of 18, when a choice had been made and fewer subjects were studied, A level examination results in 1990 showed that:

i. more males than females chose to take mathematics;
ii. the difference between males and females achieving 'good' grades was significantly lower for mathematics than it was for English;
iii. 11.4% of females achieved a Grade A in mathematics whilst only 8.7% achieved a similar result in English.

So it is evident that gender performance differences are not so cut and dried as many think. What message are we giving our students? Is it the informed one? Are we challenging their beliefs? Skelton, in her 1987 study of gender discrimination in a primary programme of teacher training, found evidence of inadvertent promotion of gender discriminatory signals. These included the idea that boys are good at mathematics.

2. <u>What might explanations for these differences be?</u>

In this section we offer some explanations supported by research:

i. teacher expectations: do teachers enter more unsuitable males as they overestimate their performance? (Kelly 1987).
ii. confidence: do females lack confidence to attempt an answer unless they are really sure and miss the opportunity to gain marks? (Joffe and Foxman 1984, Jones and Jones 1989).

iii. style of assessment procedures: the testing procedures used at Key Stage 1 may favour females; teachers marking may discriminate against girls (The Open University 1986 and Spear M. 1989);

iv. pupil expectations: pupils definitely have notions of in which subjects it is acceptable, mainly by their peers, for them to achieve: "anyone who suggests that....boys might like art better than metal work....risks ostracism in most schools" (Delamont 1990); p. 66.

v. societal expectations: perhaps boys continue to study mathematics because society expects them to do so. Russell, in her 1983 survey, found that the girls studying mathematics at 'A' level did so because they enjoyed it but many of the boys were not enjoying it and had chosen it either because it was expected of them or because it would be useful;

vi. teacher intervention: it could be that the awareness of teachers of the gender differences in performance has results in a redressing of the balance at Key Stage 1. The high level of achievement of all pupils in spatial awareness, a topic in which females are expected to do less well, could be explained by an emphasis by teachers trying to improve female performance. These effects may not have reached pupils sitting public examinations.

3. Does the way we tackle such issues on our course perpetuate myths or challenge espoused views?

As indicated earlier, this is an area which is now under careful consideration. A recent interim report on Initial Teacher Education in England and Wales (Whitty, Barrett, Barton, Furlong, Galvin, Miles, 1992) included, in a section on student characteristics, a survey of gender. It did not report on performance difference. Not a great deal of evidence exists to encourage courses to prioritise gender issues. As Coffey (1992) points out, Circular 24/89 (59/89 in Wales) containing the regulations accrediting courses, only cites equal opportunities as an example of a cross-curricular dimension which student teachers should be able to incorporate into their teaching of the National Curriculum (other examples include personal and social education and multicultural education) (Department of Education and Science 1989). Such elements are not included in the National Curriculum assessment procedures.

Further, little is known about gender related issues in initial teacher training. Skelton and Hanson (1989) found that student teachers who appeared to be aware of sexism in their training course did not recognise it in the school situation. Good (1987) and Skelton (1987) both report teacher training courses perpetuating myths about pupil performance, result in self-perpetuating myths.

> "The following week the students were asked to cite examples of children who had demonstrated reading difficulties. Perhaps not surprisingly, every child mentioned was a boy, the exception being a girl who was deaf!" Skelton (1987) p. 167.

In 1989 the Equal Opportunities Commission undertook a formal investigation of initial teacher training in England and Wales. They found that most recruits to teaching had conventional ideas about sex roles and that little was done to change these during the training. Since then the new County for the Accreditation of Teacher Education (C.A.T.E.) regulations have included the reference to 'equal opportunities' cited above. Coffey and Acker (1992) accuse teacher education in England and Wales of "fail(ing)s to provide a framework or ethos conducive to the inclusion of a gender perspective." To what extent does the course at the University College of Swansea attempt to provide a conducive framework and ethos.

1. How do we expect our students to learn to teach and in what context does that learning take place?

To begin we shall briefly outline the Postgraduate Certificate in Education Course (P.G.C.E.) at the University College of Swansea. In 1991/1992, 25 males and 71 females completed the course. The course is of 36 weeks duration approximately 55% of which is spent in schools.

Students receive 60 hours tuition in the teaching of English, mathematics and science, a comparable amount of time on the teaching of the other curriculum subjects and around 80 hours on school and professional studies some of which take place in school. The course is taught, in the main, by full and part-time members of the Department of Education who are also involved in research, supervision, and teaching Masters and other courses. Students' school placements for practical teaching experience are in the main in the local area.

It is our expectation that a substantial amount of student learning is from the models provided. This means that the schools and classrooms used and the course organization and pedagogy should be as sound as possible. The extent of our success in providing such sound models is now considered.

Course evaluations, in which the students report anonymously have indicated that sex discrimination occurs in the physical education element of the course and this is also reported verbally by students. However, things are improving; since 1988 in traditional male sports rugby, soccer and cricket, coaching courses have been available to female students. No criticism of sexism from main course tutors have been received. Visiting speakers' gender awareness has been commented upon unfavourably by the students. Of course, they may feel freer to do this than to 'criticize' their personal tutors! The "Education for All" week is no more optional than any other part of the course which separates it from the 'gender days' reported in Coffey (1992). The course director sits on the board of studies for the new interdepartmental Masters course on Women's Studies and will be lecturing to the students specialising in secondary education on gender issues; both of these facts are known to the students and should raise the status of this area.

The school-based element of the course is less 'controllable.' Students' experiences, by nature, vary from school to school and mentoring teacher to mentoring teacher. Much evidence exists to the range of these experiences.

> "There are five main ways in which schools differentiate between boys and girls to the disadvantage of both sexes. These are: the organization of the school; the teachers' strategies for controlling and motivating pupils; the organization and content of lessons; the informal conversations between pupils and their teachers; and leaving unchallenged the pupils' own stereotyping and self-segregating of activities" (Delamont 1990) p.3.

It is not difficult to find examples of the above in local schools. The daily attendance registers are required by the local education authority to have males and females listed separately; there is only one female headteacher of a mixed secondary school in the local education authority and, although the large majority of teachers in the primary schools are females, the large majority of headteachers and deputy headteachers are males. A student told of a school where misbehaving pupils were sent to a male teacher for disciplining as "men are better at that sort of thing than women"; "Mr. Tyre threatened to

make Keri (a male) sit next to Gwyneth (a female) if he did not behave." The local education authority in which most of the students carry out the bulk of their school-based experience was one of the most recent to be prosecuted under the Sex Discrimination Act (1975) because a school was only allowing males to study woodwork and only females cookery. Delamont (1990) reports on an incident in a local school in which a male teacher jokes that if he was selling a car to a woman he would put the colour first before the make, price, or mileage. When questioned about forming groups, one teacher, Mrs. Sheffield, reported feeling more comfortable at allowing pupils free choice to form single sex groups than to insist on mixed sex groups. Students are always able to find anecdotal examples from their own experiences either from observing practising teachers or as pupils to illustrate points made by tutors about differentiation between the sexes.

Does the course team perpetuate myths or does it provide a good model? Of course, teaching is seen as 'women's work' and most of the course team and students are female. Are the course team member appointments stereotypical? Do subject specialists reflect the perceived gender nature of subjects? Of the ten course team members, seven are female. Of the tutors specializing in the preparation of students to teach children ages 3 to 8, one is male. The Course Director is female. The science and mathematics specialists are female. One of the part-time tutors is male. However, the two ex-headteachers are male.

ii. Consideration of style of assessment procedures and effects of societal expectations of our students as teachers.

There are two elements to the course examination procedure. Students must satisfy the examiners in both the written and practical elements of the course. Performance in one element does not affect/cannot redress performance in the other element. Assessment procedures for the college-based part of the course are all written. One is very practically based, the other two are more of a 'traditional' essay type.

TABLE 5 ASSIGNMENT GRADES BY GENDER 1991/1992

	Female Students (%)	Male Students (%)
Grade A	17	8
Grade B	41	39
Grade C	41	47
Grade D	2	4
Grade E	0	1

Overall the performance of female students on the written element of the course was better than that of the male students. There was no significant difference in the performance of females over individual assignments although their performance tailed off slightly over the course. Male students performed marginally better on the practically based assignment than they did on either of the other two.

The school practice is assessed by the mentoring teacher, the headteacher and the supervising tutor. This leads rather neatly to a consideration of societal expectations. For example, we have male students specializing in teaching children age 3 to 8; there are expectations that such teaching would be undertaken by females. Some teachers may have prejudices against the male students. There are strong expectations locally that male teachers would be interested in coaching sports teams, particularly rugby! Not all of our male students have that interest. This could lead to criticism of lack of commitment to out of school activities or unwarranted low grading by the school.

iii. What are tutors' expectations of students?

When the students are teaching pupils the extent to which tutors have managed to challenge their beliefs and expectations are crucial. As a course team, members feel that they are very aware of the issues and that they place heavy emphasis on gender issues. A small number of suggestions of over-emphasis has been received from both male and female students. However, tutors have been criticised by Her Majesty's Inspectorate (H.M.I.) for not always challenging our students beliefs rigorously enough. "There is sometimes not enough persistent intervention on the part of tutors designed to probe

understanding and test judgement..." (H.M.I. 1991) although students reported verbally that they found seminars and tutorials more challenging than those on their undergraduate course. Anecdotal evidence from supervising tutors indicates that students are less discriminating in their teaching than many teachers. 8% chose gender issues for further study.

However, what tutors do find very difficult is to confront mentoring teachers about such issues. Even when one feels very passionately and when one is known for having strong views, one feels very reticent about initiating a discussion which could leave the mentoring teaching feeling threatened, inadequate, de-skilled, resentful, etc. Apart from not wishing to 'upset' the mentor, some tutors have expressed concerns about likely repercussions for the students, "How dare you criticise my practice, that is not professional" or of complicity between the mentor and student, "We'll have mixed sex groups when your tutor comes in, that will keep her quiet." The classroom is not necessarily the most fruitful place for such discussion to take place.

Similarly, when there is limited time to discuss the student's performance, tutors must naturally prioritise. Do they ensure that gender issues receive appropriate attention? Schools can be agents of change. They can only fulfill that role if the teachers have the knowledge and skills to recognise and tackle the injustices. Does our current Postgraduate Certificate in Education (P.G.C.E.) course prepare our students for this role?

4. In the light of the previous section, how should we begin to develop our course?

This section of the paper is intended to provoke discussion which may inform our future practice.

Strategies under consideration are:

i. professional development work within the course team to raise awareness of these issues;

ii. work with local schools to raise awareness of the issues, e.g. in service sessions, development of teaching practice tasks;

iii. closer monitoring of the current course with stronger emphasis on these issues, e.g. exploration of non-attendance at relevant sessions;

iv. an increase of explicit teaching input on these issues, e.g. in seminar work;

v. a research project to collect more substantial evidence about gender issues and the course to inform course modification in subsequent years.

In conclusion, the design of any initial teacher training course should take into account gender issues, not only from the aspect of pupil performance but from the perspective of course organization and delivery. Current government emphasis in England and Wales on increased school-based work could result in reproduction of uninformed practice through generations of teachers. Coffey (1992) suggests the formation of an anti-sexist network for teacher education and this writer is very supportive of this idea. At the University College of Swansea we are in a position to begin to address these issues.

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PARENTS' AND TEACHERS' SOCIALIZATION OF YOUNG CHILDREN'S GENDER IDENTITY
A Response to Susan Sanders' Paper

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Gender differences in the academic performance of elementary and secondary students, whether real or perceived, is a complex issue that requires a comprehensive plan for change in teacher education.

This is a very public issue of concern in the United States. Popular newspapers and magazines have published numerous articles reporting the poor performance of American students on math tests. In a 1989 cross-cultural comparison of 24,000 13-year-old students conducted by the Educational Testing Service, U.S. students demonstrated mastery of basic math skills, but their average score ranked below five other countries and four Canadian provinces. Also of concern is a decline in the number of undergraduate and graduate students who are majoring in mathematics. In response to these concerns, the National Council of Teachers of Mathematics published Curriculum and Evaluation Standards for School Mathematics for kindergarten through grade 12 in 1989, and related publications since 1989 to help teachers translate the standards into classroom practice. The implementation of these guidelines during the next decade should improve the mathematics education of students in the United States.

All students need good models and female mathematics teachers are in high demand as models for male and female students. Successful female mathematicians have reported that parental influences and the influence of female mentors were significant factors in their choice of careers and their success in the field (Becker, 1990; Fabricant, Svitak, & Kenschaft, 1990; Taylor, 1990). Creative attempts to improve the education and assessment of mathematics among female students in many countries are described in Burton's books, Girls into Maths Go (1986), Gender and Mathematics: An International Perspective (1990), and the Mathematics Teacher. Research studies have shown that male students in mathematics classes more frequently solicit and receive the teacher's help and attention, that female students do not feel comfortable asking questions and seeking help in mixed-sex classes, and that math books

and tests reflect a male orientation (Fabricant, Svitak, & Kenschaft, 1990; Leder, 1990; Walden & Walkerdine, 1986).

Leadership from the International Organization of Women and Mathematics Education has motivated concerned mathematicians to sponsor conferences which address gender issues in mathematics. Mentoring programs, same-sex mathematics classes, and the development of gender fair mathematics books and tests are innovations that have resulted from these conferences (Burton, 1986, 1990; Fabricant, Svitak, & Kenschaft, 1990). Although these special programs show promising results, mainstream changes are also needed because it is unlikely that these special programs will affect the majority of students in the near future.

The effectiveness of teacher education programs in preparing teachers who are sensitive to gender issues in elementary and seconday schools should be examined. If teacher education is viewed as a university-wide responsibility, this examination should focus on all courses taken by teacher education majors. To effect a change in attitudes, perceptions, and behaviors, gender issues should be an integrated component of every appropriate course. Because teachers have the potential to affect the lives and careers of thousands of people, teacher education programs seem to be the logical place to begin addressing these complex issues. Teachers have a direct effect on the attitudes and behaviors of their students. Since the majority of students will be parents, teachers also have the potential to affect the children of the future.

Research has shown that gender identity begins to develop during infancy, and from birth, parents and other adults tend to reinforce gender specific attitudes and behaviors (Huston, 1983; Skolnick, Langbort, & Day, 1982). It is widely known that parents communicate different expectations to boys and girls. The significant influence of parent perceptions and behaviors on the early development of gender identity is well documented. Parents, however, may not realize that their influence can limit as well as enhance children's development.

Teachers and peers, especially same-sex peers, also reinforce what they perceive as gender appropriate behavior (Huston, 1983; Kelly et al., 1990; Skolnick, Langbort, & Day, 1982). We are socialized to perceive the world in terms of male and female activities and behaviors. In studies of adult-child

play behaviors, adults had difficulty playing with young children when they weren't told the child's sex (Huston, 1983). In "X: A Fabulous Child's Story" (Gould, 1972), a couple named their child X, and they dressed X in red-and-white checked overalls. The other children loved X, but parents and teachers were confused because X was equally good at typical male and female activities. The concern was so great that X was evaluated by a psychologist, who concluded that X was a well adjusted child. After that, parents allowed their children to play at X's house. One day, the children noticed a new baby at X's house. Of course, when they asked the baby's name, X told them that the baby's name was Y.

In an atmosphere of equal rights and responsibilities for males and females, it is surprising that real and imagined perceptions of gender differences in academic performance persist. The complex factors that influence the gender specific attitudes and behaviors of teacher candidates should be addressed in order to educate teachers who can help all children reach their potential.

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POSTSCRIPT

This collaborative link was designed to strengthen international relationships. For the faculties at both institutions, it would provide an opportunity for joint research related activities as well as interdepartmental seminars. It intended to identify new opportunities for education students to take courses and do field work in either institution. It also aspired to arrange special inservice programs for teachers and other professionals.

The closing session of the first exchange enabled both faculties to spend a morning reviewing what had transpired during the week. The free exchange of ideas centered upon the logistics, i.e. the scheduling of school visits, the campus classroom visits, the symposium format, and the various tours. Overall strengths and weaknesses of the total program were also identified and suggestions were made for improving future visits. The meeting closed with the scheduling of future visits. At that time it was agreed that six staff members from La Crosse would travel to Swansea in May 1993 at the close of their spring term.

A follow-up study conducted in the form of a questionnaire was completed by each staff member who participated in the exchange. The responses indicated a general agreement about the worthiness of the exchange. Professional linkages were established and for the most part the goals of the program not only were achieved but other unanticipated outcomes were also identified such as the establishment of personal friendships.

In December of 1992, a request from Swansea proposed that the Department of Educational Foundations arrange a program for six secondary teachers from Swansea to visit high schools in western Wisconsin in April 1993. Through the joint efforts of the Department of Educational Foundations and the local chapter of Phi Delta Kappa, a program with hosted home stays was developed.

There is no doubt of the benefits of such an exchange. Perhaps one of the most astounding characteristics of this endeavor was that it was not difficult to develop nor expensive to operate. It also helped develop much closer ties within the Department of Educational Foundations. Hopefully, it did the same thing with the Swansea staff.

ISBN 0-9636941-0-3